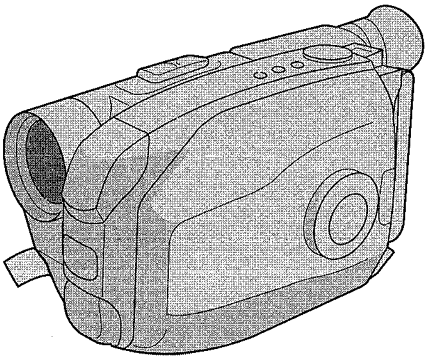
JVC

SERVICE MANUAL

COMPACT VHS CAMCORDER

GR-AX280BEK/AX285EG



Compact VHS

VHS C
PAL

Regarding service information other than these sections, refer to the GR-AX280EG service manual (No. 86379). Also, be sure to note important safety precautions provided in the service manual.

SPECIFICATIONS *(The specifications shown pertain specifically to the model GR-AX280BEK)*

GENERAL

Format	: VHS PAL standard
Power source	: DC 6V ⎓
Power consumption	: 5.0 W
Signal system	: PAL-type
Video recording system	
Luminance	: FM recording
Colour	: Converted sub-carrier direct recording Conforms to VHS standard
Cassette	: VHS C cassette
Tape speed	
SP	: 23.39 mm/sec.
LP	: 11.70 mm/sec.
Recording time (max.)	
SP	: 60 minutes
LP	: 120 minutes (with EC-60 cassette)
Operating temperature	: 0°C to +40°C
Operating humidity	: 35% to 80%
Storage temperature	: –20°C to +50°C
Weight	
•GR-AX480	: Approx. 800 g
•GR-AX280	: Approx. 790 g
Dimensions (Including viewfinder)	: 113 (W) x 117 (H) x 242 (D) mm

CAMERA

Pick up	: 1/4″ format CCD
Lens	: F1.6, f = 3.8 to 83.6 mm, 22:1 power zoom lens with auto iris and macro control, filter diameter 46 mm
Viewfinder	: Electronic viewfinder with 0.5″ black/white CRT
White balance adjustment	: Auto/Manual adjustment

VIDEO

Output	: 1 Vp-p, 75 ohms, unbalanced (via VIDEO OUT connector)

AUDIO

Output	: –8 dBs, 1 k-ohm (via AUDIO OUT connector)

AC POWER ADAPTER/BATTERY CHARGER (AA-V15EK)

Power requirement	: AC 110 V to 240 V∿, 50/60 Hz
Power consumption	: 23 W
Output	
Charge	: DC 8.5 V ⎓, 1.3 A
VTR	: DC 6.3 V ⎓, 1.8 A
Charging system	: Constant current, peak detection, timer controlled
Dimensions	: 140 (W) x 42 (H) x 68 (D) mm
Weight	: Approx. 350 g

CASSETTE ADAPTER (C-P7U)

Dimensions	: 188 (W) x 25 (H) x 104 (D) mm
Weight	: Approx. 240 g
Accessory	: "AA (R6)"-size battery x 1

Provided Accessories .... ☞ **pg. 4**

(Refer to the INSTRUCTIONS)

Optional Accessories

- **Battery Packs BN-V12U, BN-V22U, BN-V25U**
- **Car Battery Charger BH-V3E**
- **RF Unit RF-V5E**
- **Compact VHS-C Cassettes EC-60/45/30**
- **Active Carrying Bag CB-V7U**

Some accessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

Specifications shown are for SP mode unless otherwise indicated.
E. & O. E. Design and specifications subject to change without notice.

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No. 86458
February 1999

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5. PARTS LIST

5.1 PACKING ASSEMBLY <M1> 5-1
5.2 FINAL ASSEMBLY <M2> 5-3

The following table indicate main different points between models GR-AX280EG, AX285EG and GR-AX280BEK.

MODEL ITEM	GR-AX280EG	GR-AX285EG	GR-AX280BEK
AC POWER ADAPTER	AA-V15EG	AA-V15EG$\boxed{C}$	AA-V15EK$\boxed{C}$
CASS. ADAPTER ASSY	○	–	–
CABLE ASSY (AUDIO/VIDEO)	○	○	–
DC CORD	WITHOUT NOISE FILTER	WITH NOISE FILTER	←
TAPE SPEED	SP	←	SP/LP

Note: Mark – is not used. Mark ○ is used. Mark ← is same as left.

The following table indicate different parts number between models GR-AX280EG, AX285EG and GR-AX280BEK.

PACKING ASSEMBLY <M1>

REF No.	MODEL ITEM	GR-AX280EG	GR-AX285EG	GR-AX280BEK
2	PACKING CASE	LY30337-006A	LY30337-050A	LY30337-051A
5	POLY BAG	QPA02003006	←	YQM30061-3
⚠ 6	IB (EN.GE)	LYT0032-001D	←	–
⚠	IB (FR. DU)	LYT0032-002D	←	–
⚠	IB (SP. IT)	LYT0032-003D	←	–
⚠	IB (DA. FI)	LYT0032-004D	←	–
⚠	IB (SW. NO)	LYT0032-005D	←	–
⚠	IB (EN)	–	–	LYT0033-001A
9	CABLE ASSY, DC CORD	PEAC0449	YS30854C	←
11	BATTERY, CASS. ADAPTER	Used	–	–
15	CASS. ADAPTER ASSY	YQ31963A-3 or YQ31963B-3	–	–
17	CABLE ASSY (AUDIO/VIDEO)	PEAC0362-150	←	–
19	SHEET (ATT.)	–	LYT0368-001A	←
⚠ 20	SHEET (ATTENTION)	–	–	LYT0307-001A

Note: Mark – is not used. Mark ← is same as left.

FINAL ASSEMBLY <M2>

REF No.	MODEL ITEM	GR-AX280EG	GR-AX285EG	GR-AX280BEK
111	TOP COVER ASSY	LY20090-005A	LY20090-078A	LY20090-006A
114D	SPACER (C. COVER)	–	LY40071-001A	←
159	SHIELD CASE ASSY	–	LY30521-001A	←
160	SCREW	–	QYSLSF2050D	←
161	SHIELD PLATE	–	LY40972-001A	←

MECHANISM ASSEMBLY <M3>

REF No.	MODEL ITEM	GR-AX280EG	GR-AX285EG	GR-AX280BEK
468	DRUM ASSY	YDV2084A	←	YDV2083A

MAIN1 BOARD ASSEMBLY <01>

REF No.	MODEL ITEM	GR-AX280EG	GR-AX285EG	GR-AX280BEK
PW1	MAIN1 BOARD ASSY	YB10210PA1-01	YB10210PA1-02	YB10210PB1-02
Q6002	TRANSISTOR/MG RESISTOR	2SA1774/QR/-X	NRSA63J-0R0X	←
Q6003	TRANSISTOR	DTC114EE	–	–
Q6010	TRANSISTOR	MPL1	–	–
Q6019	TRANSISTOR/MG RESISTOR	2SA1774/QR/-X	NRSA63J-0R0X	←
Q6020	TRANSISTOR/MG RESISTOR	2SC4617/QR/-X	NRSA63J-0R0X	←
Q6021	TRANSISTOR	DTA144EE	–	–
Q6022	TRANSISTOR	2SC4617/QR/-X	–	–
D3001	DIODE	–	–	DAP222
D6005	DIODE	1SS355	–	–
D6011	DIODE	1SS355	–	–
R197	MG RESISTOR	–	NRSA63J-102X	←
R3010	MG RESISTOR	NRSA63J-471X	←	NRSA63J-391X
R3013	MG RESISTOR	–	–	NRSA63J-332X
R3017	MG RESISTOR	–	–	NRSA63J-103X
R3221	MG RESISTOR	NRSA63J-152X	←	NRSA63J-332X
R3225	MG RESISTOR	NRSA63J-122X	←	NRSA63J-152X
R3234	MG RESISTOR	NRSA63J-152X	←	NRSA63J-122X
R6014	MG RESISTOR	NRSA63J-103X	–	–
R6015	MG RESISTOR	NRSA63J-102X	–	–

Note: Mark – is not used. Mark ← is same as left.

REF No.	MODEL ITEM	GR-AX280EG	GR-AX285EG	GR-AX280BEK
R6018	MG RESISTOR	–	NRSA63J-0R0X	←
R6029	MG RESISTOR	NRSA63J-471X	–	–
R6030	CMF RESISTOR	NRVA63D-473X	–	–
R6031	CMF RESISTOR	NRVA63D-302X	–	–
R6032	MG RESISTOR	NRSA63J-682X	–	–
R6033	CMF RESISTOR	NRVA63D-113X	–	–
R6034	CMF REISSTOR	NRVA63D-363X	–	–
R6061	MG RESISTOR	NRSA63J-103X	–	–
R6062	MG RESISTOR	NRSA63J-473X	–	–
R6063	MG RESISTOR	NRSA63J-103X	–	–
R6064	MG RESISTOR	NRSA63J-683X	–	–
R6065	MG RESISTOR	NRSA63J-224X	–	–
R6066	MG RESISTOR	NRSA63J-104X	–	–
R6074	MG RESISTOR	NRSA02J-0R0X	–	–
R6075	MG RESISTOR	NRSA02J-0R0X	–	–
R6076	MG RESISTOR	–	NRSA63J-1R0X	←
C3016	CAPACITOR	–	–	NDC31HJ-330X
C3231	CAPACITOR	NDC31HJ-330X	←	NDC31HJ-680X
C3232	CAPACITOR	NDC31HJ-151X	←	NDC31HJ-271X
C6023	CAPACITOR	–	NCB11CK-225X	←
C6033	CAPACITOR	NCB11CK-105X	–	–
C6034	T CAPACITOR	NBE20JM-106X	–	–
C6035	CAPACITOR	NCB31EK-103X	–	–
C6042	CAPACITOR	NCB11CK-105X	–	–
C6043	CAPACITOR	NCB31HK-152X	–	–
C6045	CAPACITOR	NCB11CK-105X	–	–
C6047	CAPACITOR	NCB11CK-105X	–	–
C6061	CAPACITOR	NCB21CK-224X	–	–
C6063	CAPACITOR	NCB31CK-104X	–	–
L3002	COIL	–	–	NQL184J-221X
L6009	COIL	NQL17CM-470X	–	–
L6010	COIL	NQL03BK-150X	–	–
WR1	THIN WIRE	–	YU40017-020-1	←

Note: Mark – is not used. Mark ← is same as left.

CCD BOARD ASSEMBLY <02>

REF No.	MODEL / ITEM	GR-AX280EG	GR-AX285EG	GR-AX280BEK
PW2	CCD BOARD ASSY	YB10210PA2-01	YB10210PA2-02	YB10210PB2-02

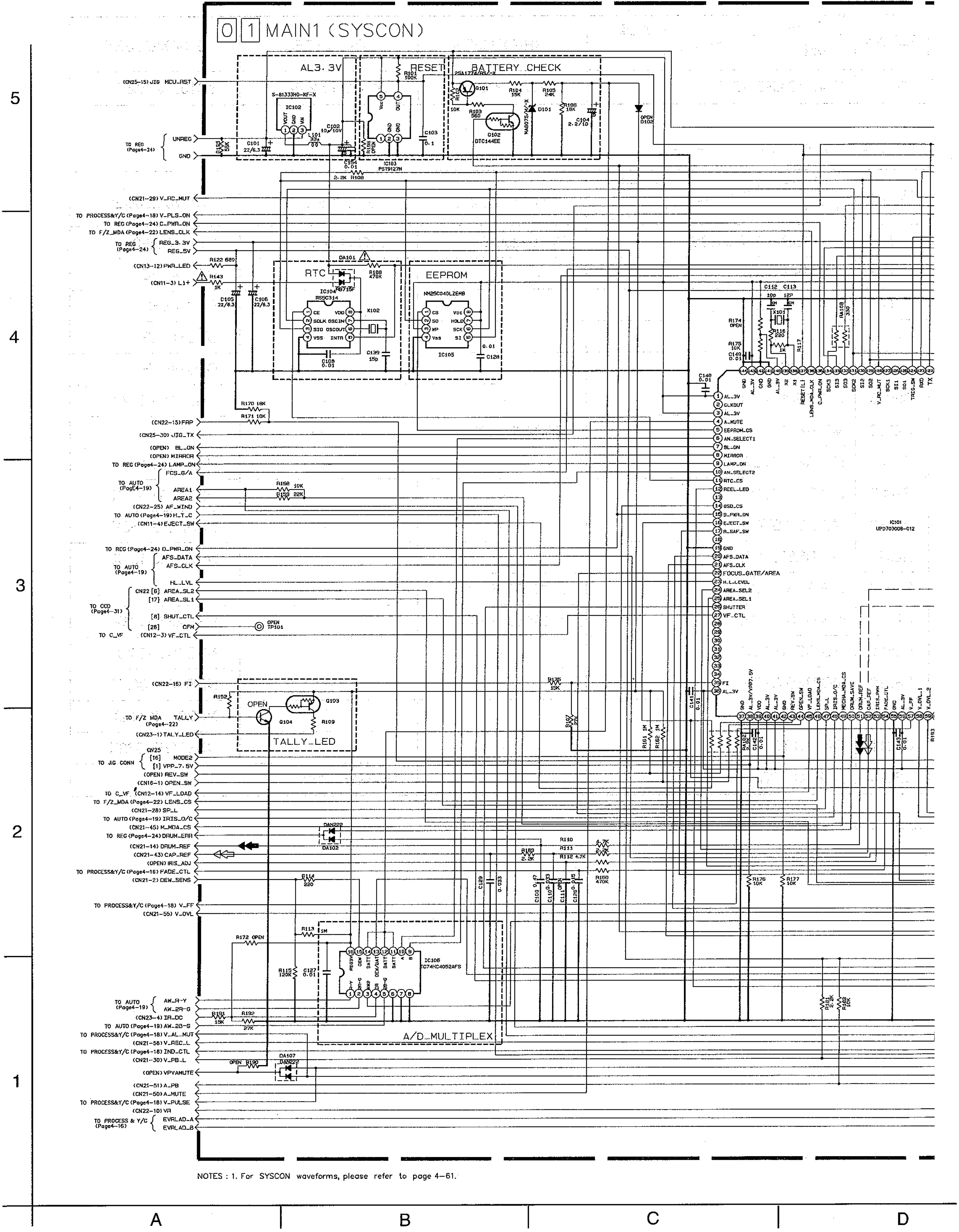
SENSOR BOARD ASSEMBLY <03>

REF No.	MODEL / ITEM	GR-AX280EG	GR-AX285EG	GR-AX280BEK
PW	SENSOR BOARD ASSY	YB10220C-01	YB10220C-03	YB10220B-03
Q2008	TRANSISTOR	–	–	DTC144EE
Q2009	TRANSISTOR	–	–	DTC144EE
Q2010	TRANSISTOR	–	–	DTC144EE
Q3505	TRANSISTOR	–	–	DTC144EE
R2018	MG RESISTOR	–	–	NRSA63J-132X
R2019	MG RESISTOR	NRSA63J-132X	←	–
R2021	MG RESISTOR	–	–	NRSA63J-102X
R2027	MG RESISTOR	–	–	NRSA63J-682X
R2039	MG RESISTOR	–	–	NRSA63J-153X
R2041	MG RESISTOR	–	–	NRSA63J-153X
R2042	MG RESISTOR	NRSA63J-0R0X	←	–
R2062	MG RESISTOR	NRSA63J-473X	–	NRSA63J-473X
R3511	MG RESISTOR	–	–	NRSA63J-332X
R3513	MG RESISTOR	–	–	NRSA63J-332X
C2009	CAPACITOR	–	–	NCB31HK-152X
C2011	CAPACITOR	–	–	NCB31HK-332X
C2029	CAPACITOR	–	NCB21EK-104X	–

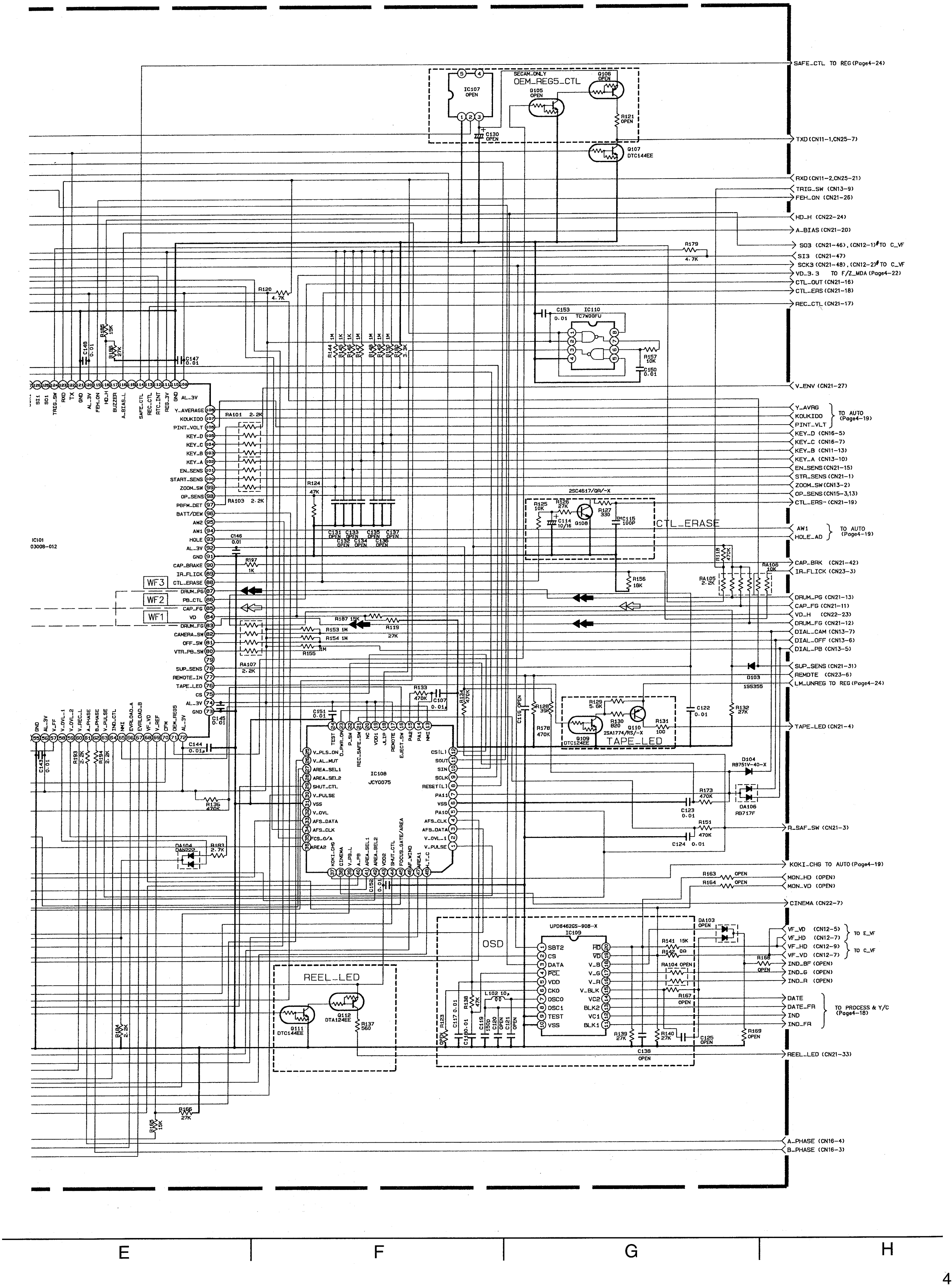
Note: Mark – is not used. Mark ← is same as left.

SECTION 4
CHARTS AND DIAGRAMS

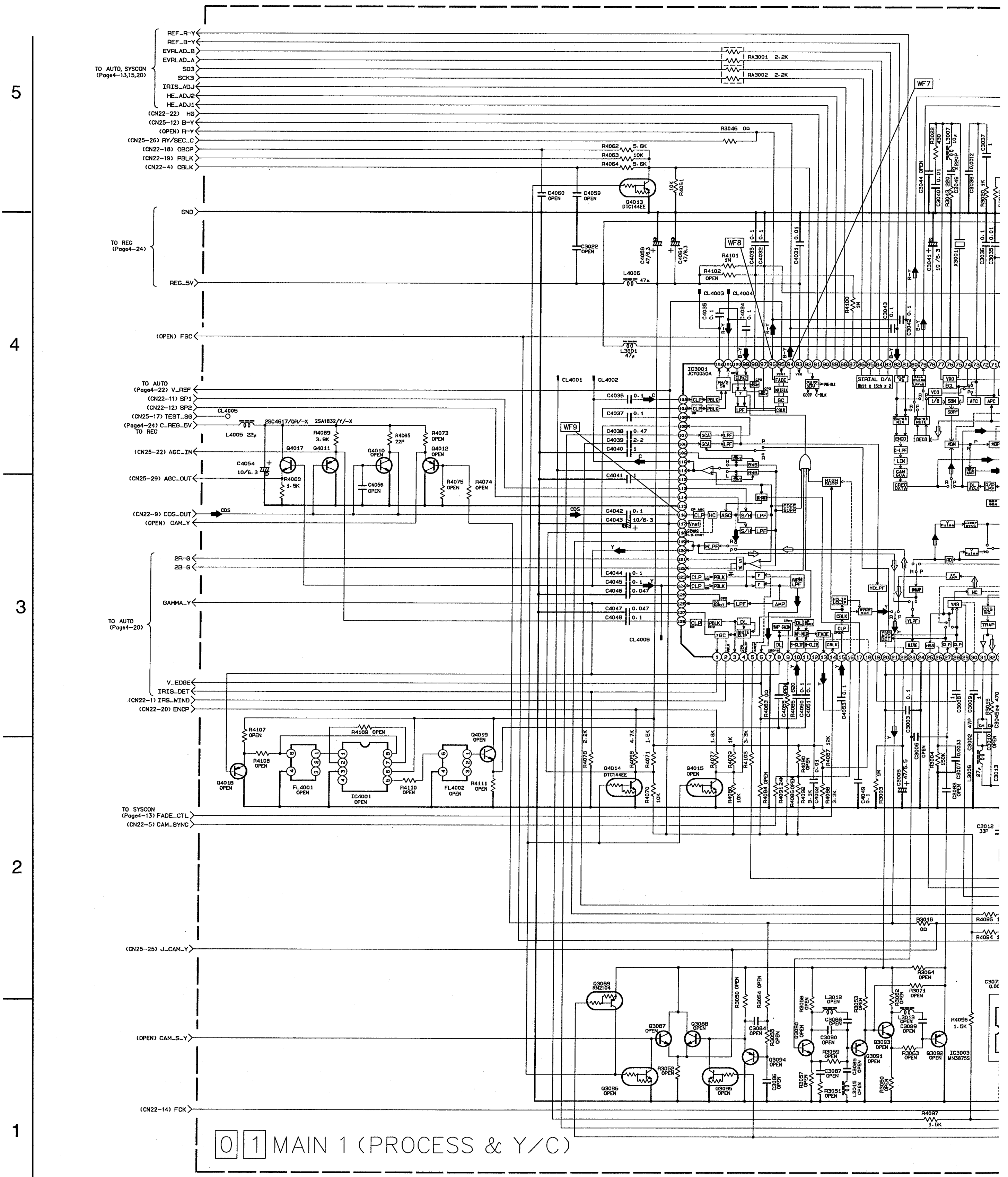
4.5 SYSCON SCHEMATIC DIAGRAM


01 MAIN1 (SYSCON)
AL3.3V
RESET
BATTERY CHECK
S-81333HG-KF-X
IC102
IC103
PST9127N
2SA1774/RS/-X
Q101
Q102
DTC144EE
D101
MA8075/V/-X
D102
OPEN
RTC
IC104
RS5C314
X102
DA101
EEPROM
NM25C040LZEM8
IC105
TALLY_LED
Q103
Q104
A/D_MULTIPLEX
IC106
TC74HC4052AFS
IC101
UPD703008-012
(CN25-15) JIG MCU_RST
TO REG (Page4-24) UNREG
GND
(CN21-29) V_RC_MUT
TO PROCESS&Y/C (Page4-18) V_PLS_ON
TO REG (Page4-24) C_PWR_ON
TO F/Z_MDA (Page4-22) LENS_CLK
TO REG (Page4-24) REG_3.3V
REG_5V
(CN13-12) PWR_LED
(CN11-3) L1+
(CN22-15) FRP
(CN25-30) JIG_TX
(OPEN) BL_ON
(OPEN) MIRROR
TO REG (Page4-24) LAMP_ON
TO AUTO (PagE4-19) FCS_G/A
AREA1
AREA2
(CN22-25) AF_WIND
TO AUTO (Page4-19) H_T_C
(CN11-4) EJECT_SW
TO REG (Page4-24) D_PWR_ON
TO AUTO (Page4-19) AFS_DATA
AFS_CLK
HL_LVL
TO CCD (Page4-31) CN22 [6] AREA_SL2
[17] AREA_SL1
[8] SHUT_CTL
[26] CFM
TO C_VF (CN12-3) VF_CTL
OPEN TP101
(CN22-16) FI
TO F/Z MDA (Page4-22) TALLY
(CN23-1) TALY_LED
TO JIG CONN CN25 [16] MODE2
[1] VPP_7.5V
(OPEN) REV_SW
(CN18-1) OPEN_SW
TO C_VF (CN12-14) VF_LOAD
TO F/Z_MDA (Page4-22) LENS_CS
(CN21-28) SP_L
TO AUTO (Page4-19) IRIS_O/C
(CN21-45) M_MDA_CS
TO REG (Page4-24) DRUM_ERR
(CN21-14) DRUM_REF
(CN21-43) CAP_REF
(OPEN) IRIS_ADJ
TO PROCESS&Y/C (Page4-16) FADE_CTL
(CN21-2) DEW_SENS
TO PROCESS&Y/C (Page4-18) V_FF
(CN21-55) V_OVL
TO AUTO (Page4-19) AW_R-Y
AW_2R-G
(CN23-4) IR_DC
TO AUTO (Page4-19) AW_2B-G
TO PROCESS&Y/C (Page4-18) V_AL_MUT
(CN21-56) V_REC_L
TO PROCESS&Y/C (Page4-18) IND_CTL
(CN21-30) V_PB_L
(OPEN) VPVAMUTE
(CN21-51) A_PB
(CN21-50) A_MUTE
TO PROCESS&Y/C (Page4-18) V_PULSE
(CN22-10) VR
TO PROCESS & Y/C (Page4-16) EVRLAD_A
EVRLAD_B
DAN222
DA102
DA107
1 AL_3V
2 CLKOUT
3 AL_3V
4 A_MUTE
5 EEPROM_CS
6 AN_SELECT1
7 BL_ON
8 MIRROR
9 LAMP_ON
10 AN_SELECT2
11 RTC_CS
12 REEL_LED
14 OSD_CS
15 D_PWR_ON
16 EJECT_SW
17 R_SAF_SW
19 GND
20 AFS_DATA
21 AFS_CLK
22 FOCUS_GATE/AREA
23 H_L_LEVEL
24 AREA_SEL2
25 AREA_SEL1
26 SHUTTER
27 VF_CTL
35 FI
36 AL_3V
5
4
3
2
1
A
B
C
D

NOTES : 1. For SYSCON waveforms, please refer to page 4–61.


SAFE_CTL TO REG (Page4-24)
TXD (CN11-1,CN25-7)
RXD (CN11-2,CN25-21)
TRIG_SW (CN13-9)
FEH_ON (CN21-26)
HD_H (CN22-24)
A_BIAS (CN21-20)
SO3 (CN21-46), (CN12-1) TO C_VF
SI3 (CN21-47)
SCK3 (CN21-48), (CN12-2) TO C_VF
VD_3.3 TO F/Z_MDA (Page4-22)
CTL_OUT (CN21-16)
CTL_ERS (CN21-18)
REC_CTL (CN21-17)
V_ENV (CN21-27)
Y_AVRG
KOUKIDO
PINT_VLT
TO AUTO (Page4-19)
KEY_D (CN16-5)
KEY_C (CN16-7)
KEY_B (CN11-13)
KEY_A (CN13-10)
EN_SENS (CN21-15)
STR_SENS (CN21-1)
ZOOM_SW (CN13-2)
OP_SENS (CN15-3,13)
CTL_ERS- (CN21-19)
AW1
HOLE_AD
TO AUTO (Page4-19)
CAP_BRK (CN21-42)
IR_FLICK (CN23-3)
DRUM_PG (CN21-13)
CAP_FG (CN21-11)
VD_H (CN22-23)
DRUM_FG (CN21-12)
DIAL_CAM (CN13-7)
DIAL_OFF (CN13-6)
DIAL_PB (CN13-5)
SUP_SENS (CN21-31)
REMOTE (CN23-6)
LM_UNREG TO REG (Page4-24)
TAPE_LED (CN21-4)
R_SAF_SW (CN21-3)
KOKI_CHG TO AUTO (Page4-19)
MON_HD (OPEN)
MON_VD (OPEN)
CINEMA (CN22-7)
VF_VD (CN12-5)
VF_HD (CN12-7)
TO E_VF
VF_HD (CN12-9)
VF_VD (CN12-7)
TO C_VF
IND_BF (OPEN)
IND_G (OPEN)
IND_R (OPEN)
DATE
DATE_FR
IND
IND_FR
TO PROCESS & Y/C (Page4-18)
REEL_LED (CN21-33)
A_PHASE (CN16-4)
B_PHASE (CN16-3)
SECAM_ONLY
OEM_REG5_CTL
IC107 OPEN
Q105 OPEN
Q106 OPEN
R121 OPEN
C130 OPEN
Q107 DTC144EE
R179 4.7K
R120 4.7K
C153 0.01
IC110 TC7W00FU
R157 10K
C150 0.01
IC101 03008-012
WF1
WF2
WF3
2SC4617/QR/-X
CTL_ERASE
Q108
TAPE_LED
Q109 DTC124EE
Q110 2SA1774/RS/-X
IC108 JCY0075
D103 1SS355
D104 RB751V-40-X
DA106 RB717F
OSD
UPD6462GS-908-X
IC109
DA103 OPEN
REEL_LED
Q111 DTC144EE
Q112 DTA124EE
R137 560
E
F
G
H

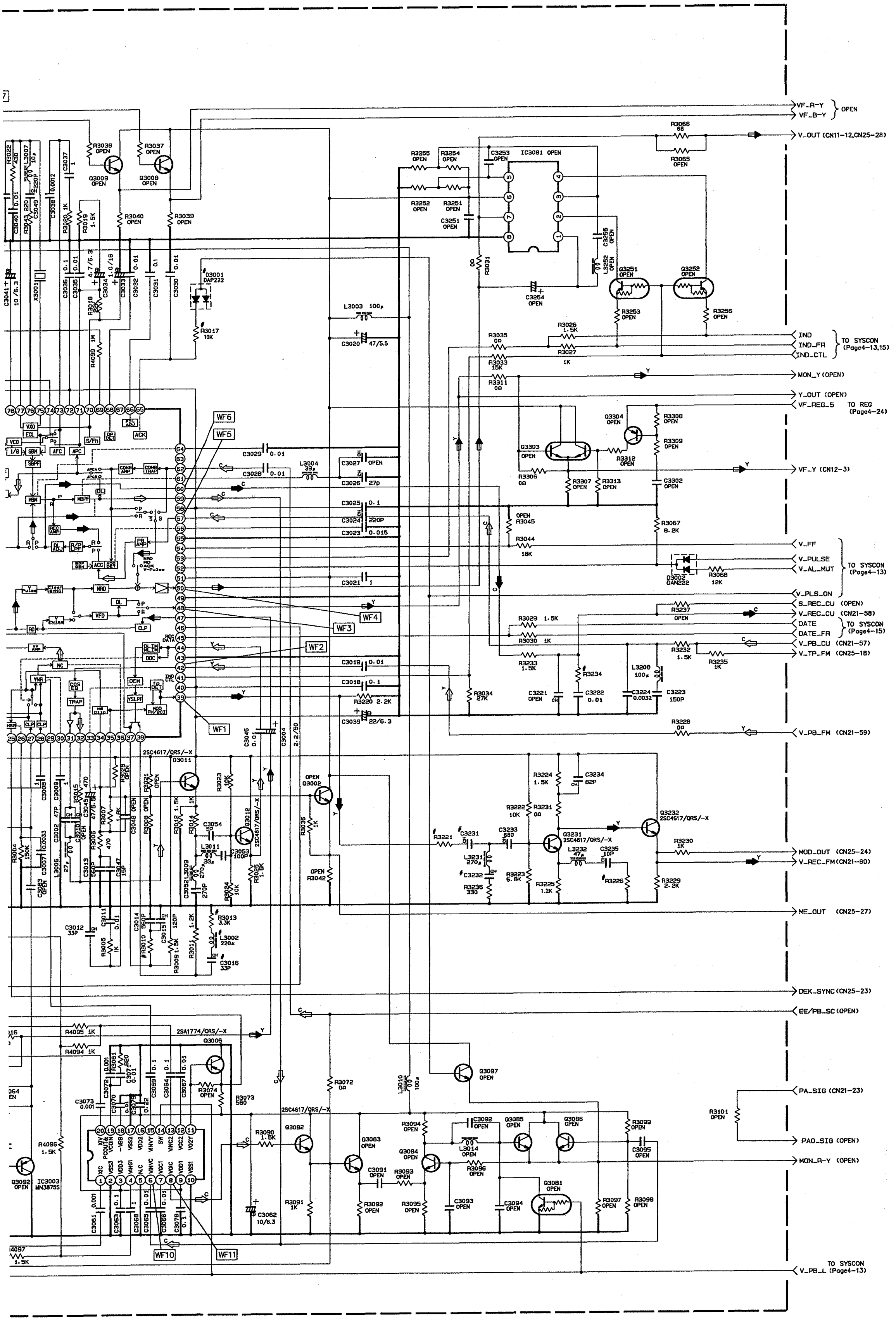
4.6 PROCESS AND Y/C SCHEMATIC DIAGRAM


5
4
3
2
1
TO AUTO, SYSCON (Page4-13,15,20)
REF_R-Y
REF_B-Y
EVRLAD_B
EVRLAD_A
SO3
SCK3
IRIS_ADJ
HE_ADJ2
HE_ADJ1
(CN22-22) HG
(CN25-12) B-Y
(OPEN) R-Y
(CN25-26) RY/SEC_C
(CN22-18) OBCP
(CN22-19) PBLK
(CN22-4) CBLK
TO REG (Page4-24)
GND
REG_5V
(OPEN) FSC
TO AUTO (Page4-22) V_REF
(CN22-11) SP1
(CN22-12) SP2
(CN25-17) TEST_SG
(Page4-24) C_REG_5V TO REG
(CN25-22) AGC_IN
(CN25-29) AGC_OUT
(CN22-9) CDS_OUT
(OPEN) CAM_Y
TO AUTO (Page4-20)
2R-G
2B-G
GAMMA_Y
V_EDGE
IRIS_DET
(CN22-1) IRS_WIND
(CN22-20) ENCP
TO SYSCON (Page4-13) FADE_CTL
(CN22-5) CAM_SYNC
(CN25-25) J_CAM_Y
(OPEN) CAM_S_Y
(CN22-14) FCK
RA3001 2.2K
RA3002 2.2K
WF7
WF8
WF9
R3046 0Ω
R4062 5.6K
R4063 10K
R4064 5.6K
Q4013 DTC144EE
IC3001 JCY0050A
SIRIAL D/A 8bit x 16ch x 2
Q4017
Q4011
Q4010 OPEN
Q4012 OPEN
2SC4617/QR/-X
2SA1832/Y/-X
L4005 22μ
C4054 10/6.3
CDS
FL4001 OPEN
IC4001 OPEN
FL4002 OPEN
Q4018 OPEN
Q4019 OPEN
Q4014 DTC144EE
Q4015 OPEN
Q3089 RN2104
Q3087 OPEN
Q3088 OPEN
Q3096 OPEN
Q3095 OPEN
Q3093 OPEN
Q3091 OPEN
Q3092 OPEN
IC3003 MN3875S
R4097 1.5K
01 MAIN 1 (PROCESS & Y/C)

NOTES : 1. COMPARISON CHART OF MODELS & MARKS (#)
2. For PROCESS & Y/C waveforms, please refer to page 4-61.

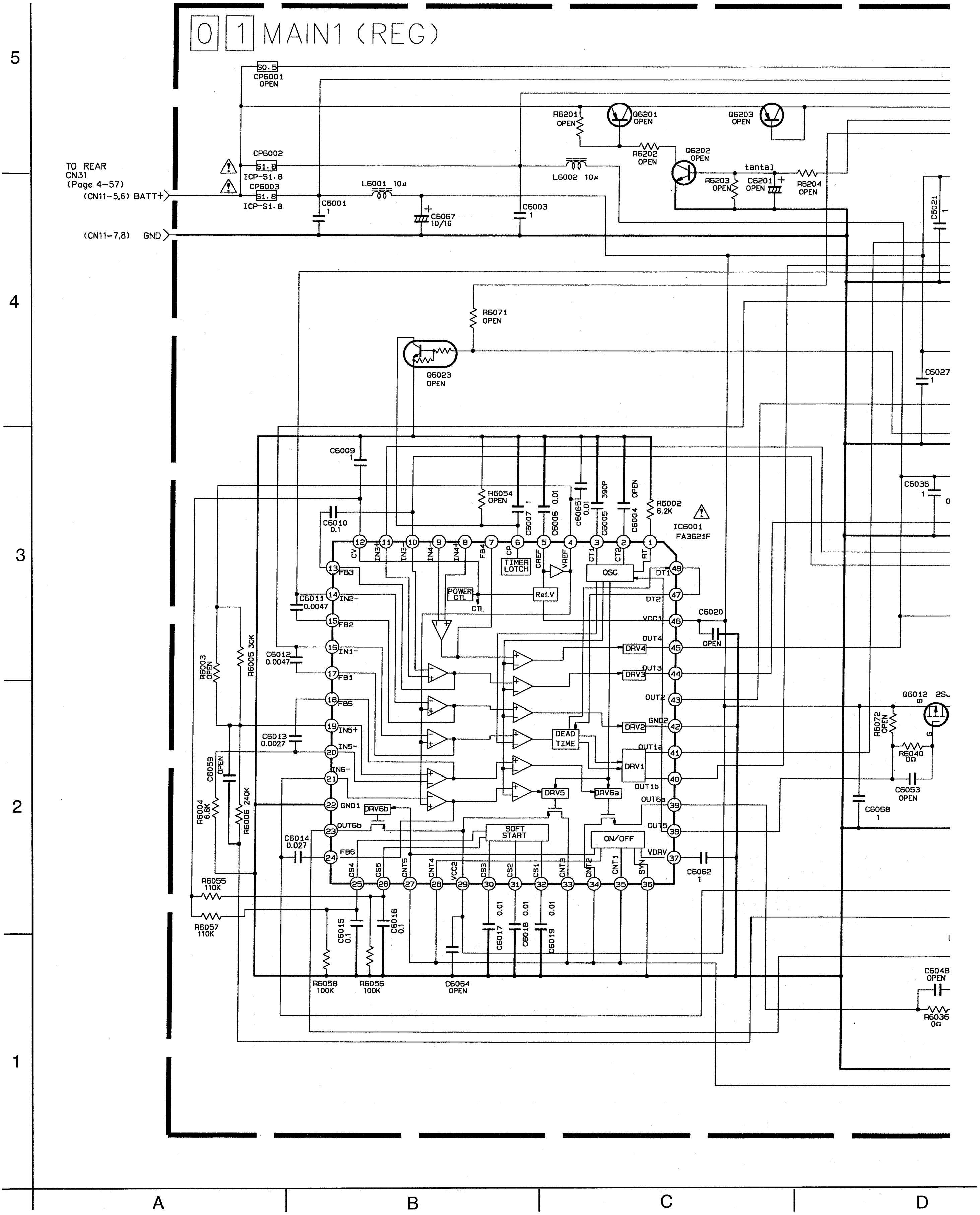
REF. NO / MODELS	D3001	R3010	R3013	R3017	R3221	R3225
GR-AX285EG	OPEN	470	OPEN	OPEN	1.5K	1.2K
GR-AX280BEK	USED	390	USED	USED	3.3K	1.5K

A B C D

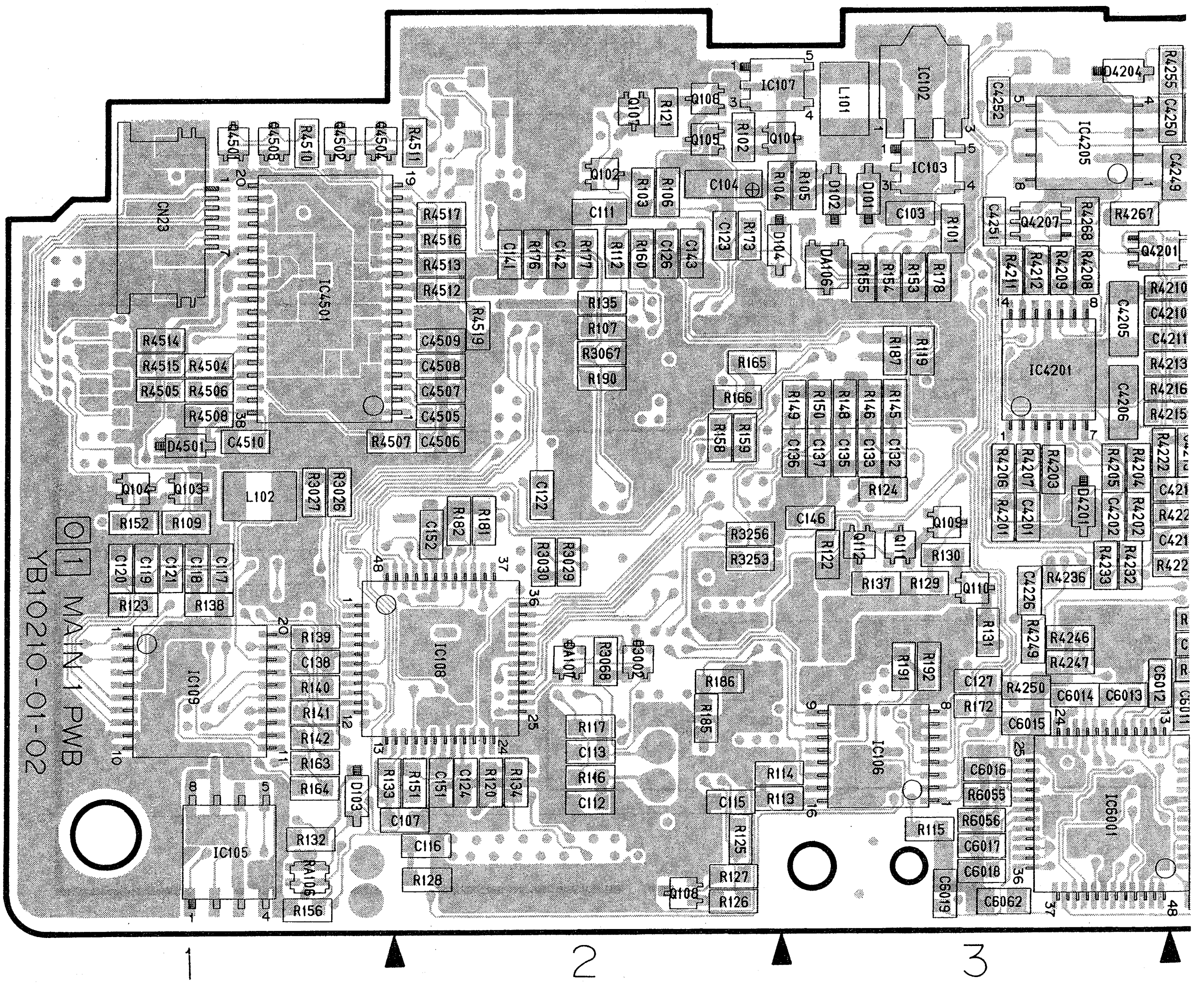

VF_R-Y
VF_B-Y
OPEN
V_OUT (CN11-12,CN25-28)
IC3081 OPEN
IND
IND_FR
IND_CTL
TO SYSCON (Page4-13,15)
MON_Y (OPEN)
Y_OUT (OPEN)
VF_REG_5
TO REG (Page4-24)
VF_Y (CN12-3)
V_FF
V_PULSE
V_AL_MUT
TO SYSCON (Page4-13)
V_PLS_ON
S_REC_CU (OPEN)
V_REC_CU (CN21-58)
DATE
DATE_FR
TO SYSCON (Page4-15)
V_PB_CU (CN21-57)
V_TP_FM (CN25-18)
V_PB_FM (CN21-59)
MOD_OUT (CN25-24)
V_REC_FM (CN21-60)
ME_OUT (CN25-27)
DEK_SYNC (CN25-23)
EE/PB_SC (OPEN)
PA_SIG (CN21-23)
PAO_SIG (OPEN)
MON_R-Y (OPEN)
TO SYSCON
V_PB_L (Page4-13)
WF1
WF2
WF3
WF4
WF5
WF6
WF10
WF11
IC3003 MN3875S
2SC4617/QRS/-X
2SA1774/QRS/-X
DAN222
DAP222

221	R3225	R3234	C3016	C3231	C3232	L3002
5K	1.2K	1.5K	OPEN	33P	150P	OPEN
3K	1.5K	1.2K	USED	68P	270P	USED

4.9 REGULATOR SCHEMATIC DIAGRAM


0 1 MAIN1 (REG)
TO REAR CN31 (Page 4-57)
(CN11-5,6) BATT+
(CN11-7,8) GND
S0.5 CP6001 OPEN
CP6002 S1.8 ICP-S1.8
CP6003 S1.8 ICP-S1.8
C6001 1
L6001 10µ
C6067 10/16
C6003 1
L6002 10µ
R6201 OPEN
Q6201 OPEN
R6202 OPEN
Q6202 OPEN
Q6203 OPEN
R6203 OPEN
tantal
C6201 OPEN
R6204 OPEN
C6021 1
R6071 OPEN
Q6023 OPEN
C6027 1
C6009 1
C6010 0.1
R6054 OPEN
C6007 1
C6006 0.01
C6065 0.01
C6005 390P
C6004 OPEN
R6002 6.2K
IC6001 FA3621F
C6036 1
CV IN3+ IN3- IN4- IN4+ FB4 CP CREF VREF CT1 CT2 RT
TIMER LOTCH
OSC
POWER CTL
CTL
Ref.V
FB3 IN2- FB2 IN1- FB1 FB5 IN5+ IN5- IN6- GND1 OUT6b FB6
DT1 DT2 VCC1 OUT4 OUT3 OUT2 GND2 OUT1a OUT1b OUT6a OUT5 VDRV
DRV4 DRV3 DRV2 DRV1 DRV5 DRV6a DRV6b
DEAD TIME
SOFT START
ON/OFF
CS4 CS5 CNT5 CNT4 VCC2 CS3 CS2 CS1 CNT3 CNT2 CNT1 SYN
C6011 0.0047
C6012 0.0047
C6013 0.0027
C6014 0.027
C6020 OPEN
C6062 1
R6003 OPEN
R6005 30K
C6059 OPEN
R6004 6.8K
R6006 240K
R6055 110K
R6057 110K
C6015 0.1
C6016 0.1
C6017 0.01
C6018 0.01
C6019 0.01
R6058 100K
R6056 100K
C6064 OPEN
Q6012 2S
R6072 OPEN
R6040 0Ω
C6053 OPEN
C6068 1
C6048 OPEN
R6036 0Ω
5
4
3
2
1
A
B
C
D

4.10 MAIN1 CIRCUIT BOARD



IC107
L101
IC102
D4204
R4255
C4250
C4252
IC4205
C4249
Q107
R121
Q106
Q105
R102
Q101
IC103
Q102
R103
R106
C104
R104
R105
D102
D101
C103
R101
C4251
Q4207
R4268
R4267
Q4201
C111
C123
R173
D104
DA106
R155
R154
R153
R178
R4211
R4212
R4209
R4208
R4210
C4210
C4211
C4205
IC4201
R4213
R4216
R4215
C4206
C141
R176
C142
R177
R112
R160
C126
C143
R135
R107
R3067
R190
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R166
R187
R119
R149
R150
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R146
R145
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R4203
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R4205
R4204
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C4202
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R4233
R4232
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R4247
R4249
R4250
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C6013
C6012
C6011
C6015
IC6001
C6016
R6055
R6056
C6017
C6018
C6062
C6019
CN23
IC4501
R4517
R4516
R4513
R4512
R4519
C4509
C4508
C4507
C4505
C4506
R4507
R4510
R4511
R4514
R4515
R4504
R4505
R4506
R4508
D4501
C4510
Q104
Q103
L102
R3027
R3026
R152
R109
C120
C119
C121
C118
C117
R123
R138
01 MAIN1 PWB
YB10210-01-02
IC109
R139
C138
R140
R141
R142
R163
R164
IC105
R132
RA106
R156
D103
C107
C116
R128
IC108
C152
R182
R181
C122
R3030
R3029
R3256
R3253
C146
R122
Q112
Q111
Q109
R130
R137
R129
Q110
R131
DA107
R3068
R3002
R186
R185
R191
R192
C127
R172
IC106
R114
R113
C115
R125
R115
R127
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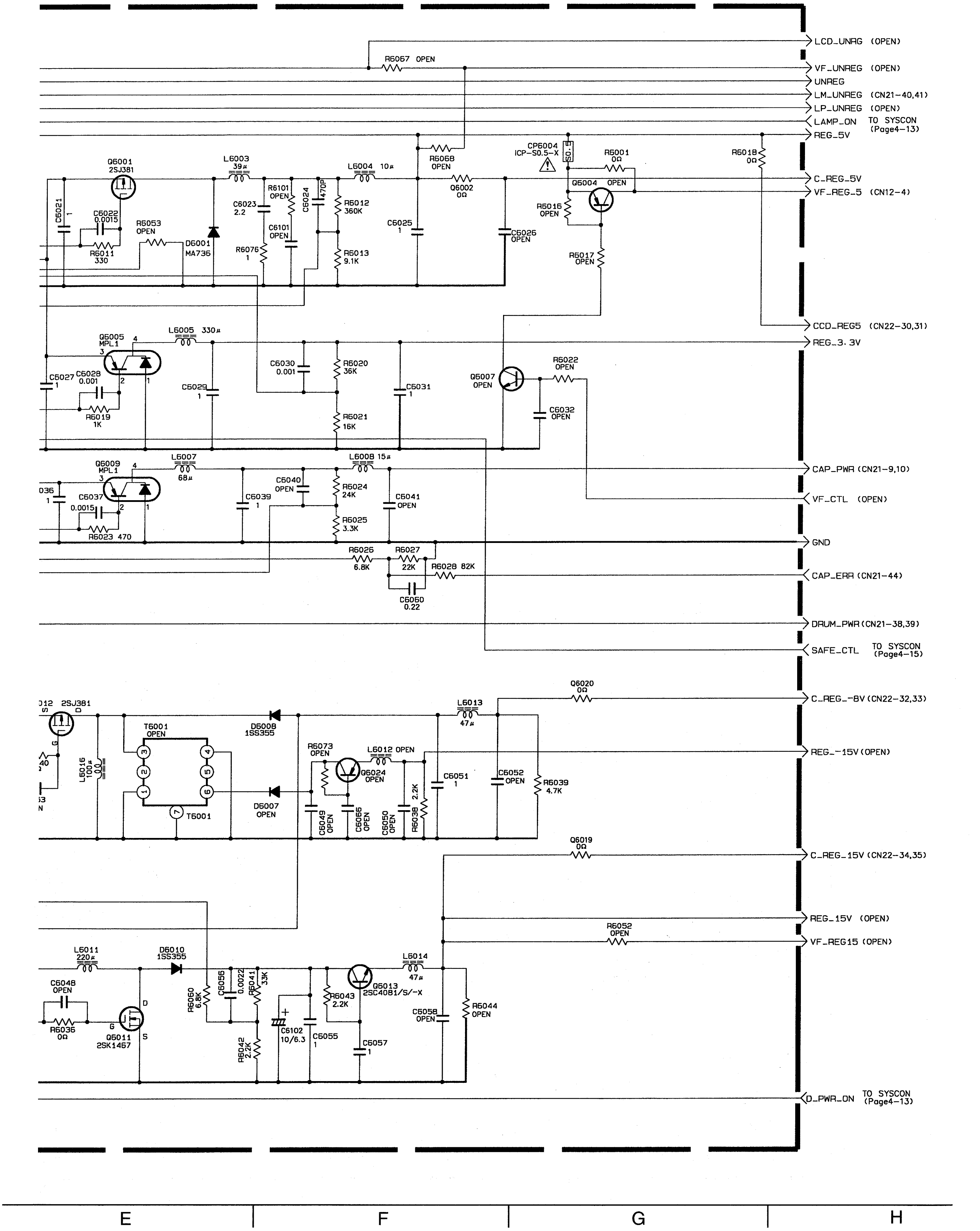
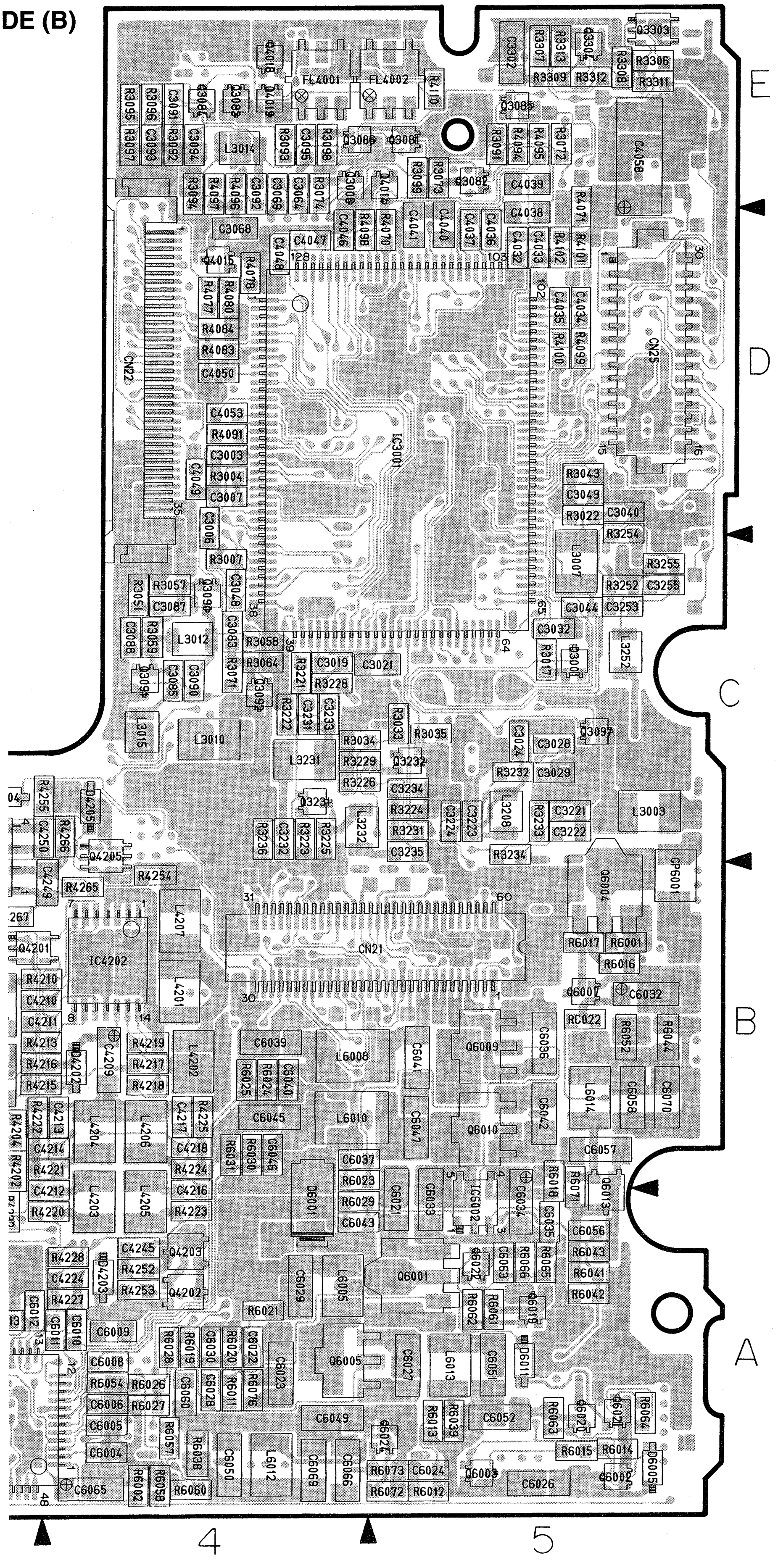
C124
R120
R134
1
2
3


LCD_UNRG (OPEN)
R6067 OPEN
VF_UNREG (OPEN)
UNREG
LM_UNREG (CN21-40,41)
LP_UNREG (OPEN)
LAMP_ON
TO SYSCON (Page4-13)
REG_5V
Q6001 2SJ381
L6003 39µ
R6101 OPEN
C6024 470P
L6004 10µ
R6068 OPEN
CP6004 ICP-S0.5-X
S0.5
R6001 0Ω
R6018 0Ω
C_REG_5V
Q6002 0Ω
Q6004 OPEN
VF_REG_5 (CN12-4)
C6021 1
C6022 0.0015
R6053 OPEN
C6023 2.2
C6101 OPEN
R6012 360K
C6025 1
C6026 OPEN
R6016 OPEN
R6011 330
D6001 MA736
R6076 1
R6013 9.1K
R6017 OPEN
CCD_REG5 (CN22-30,31)
Q6005 MPL1
L6005 330µ
REG_3.3V
C6027 1
C6028 0.001
C6030 0.001
R6020 36K
R6022 OPEN
Q6007 OPEN
C6029 1
C6031 1
R6019 1K
R6021 16K
C6032 OPEN
Q6009 MPL1
L6007 68µ
L6008 15µ
CAP_PWR (CN21-9,10)
036 1
C6037 0.0015
C6040 OPEN
R6024 24K
C6039 1
C6041 OPEN
VF_CTL (OPEN)
R6023 470
R6025 3.3K
GND
R6026 6.8K
R6027 22K
R6028 82K
CAP_ERR (CN21-44)
C6050 0.22
DRUM_PWR (CN21-38,39)
SAFE_CTL
TO SYSCON (Page4-15)
Q6020 0Ω
012 2SJ381
S D G
L6013 47µ
C_REG_-8V (CN22-32,33)
T6001 OPEN
D6008 1SS355
R6073 OPEN
L6012 OPEN
Q6024 OPEN
REG_-15V (OPEN)
L6016 100µ
C6051 1
C6052 OPEN
R6039 4.7K
D6007 OPEN
T6001
C6049 OPEN
C6066 OPEN
C6050 OPEN
R6038 2.2K
Q6019 0Ω
C_REG_15V (CN22-34,35)
REG_15V (OPEN)
R6052 OPEN
VF_REG15 (OPEN)
L6011 220µ
D6010 1SS355
L6014 47µ
C6048 OPEN
R6050 6.8K
C6056 0.0022
R6041 33K
Q6013 2SC4081/S/-X
R6043 2.2K
R6036 0Ω
Q6011 2SK1457
C6102 10/6.3
C6055 1
C6058 OPEN
R6044 OPEN
R6042 2.2K
C6057 1
D_PWR_ON
TO SYSCON (Page4-13)
E
F
G
H

FOIL SIDE (B)


E
D
C
B
A
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5
FL4001
FL4002
R4110
C3302
R3307
R3313
Q3301
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R3308
R3306
R3309
R3312
R3311
Q4018
Q3085
R3095
R3096
C3091
Q3084
Q3083
Q4019
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C3093
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C3094
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Q3081
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R4098
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R4102
R4101
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R4078
R4077
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R4099
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CN25
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C4053
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C3003
R3004
C4049
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C3006
R3007
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R3022
C3040
R3254
L3007
R3255
R3252
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C3044
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R3051
R3057
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R3035
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Q3234
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R4254
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R6016
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L4201
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R6043
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38
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16
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60
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48

COMPONENT PARTS LOCATION GUIDE (MAIN1)

REF.No.	LOCATION		
CAPACITOR			
C101	A	C	3C
C102	A	C	3B
C103	B	C	3B
C104	B	C	2B
C105	A	C	3A
C106	A	C	3A
C107	B	C	2A
C108	A	C	1A
C109	A	C	2C
C110	A	C	2C
C111	B	C	2B
C112	B	C	2A
C113	B	C	2A
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C122	B	C	2B
C123	B	C	2B
C124	B	C	2A
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C153	A	C	1A
C154	A	C	3B
C3002	A	C	4C
C3003	B	C	4D
C3004	A	C	5C
C3005	A	C	4C
C3006	B	C	4D
C3007	B	C	4D
C3008	A	C	5D
C3009	A	C	4D
C3010	A	C	4C
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C3018	A	C	4C
C3019	B	C	4C
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C3023	A	C	5C
C3024	B	C	5C
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C3026	A	C	5C
C3027	A	C	5C
C3028	B	C	5C
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C3033	A	C	5C
C3034	A	C	5D
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C3095	B	C	4E
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C3253	B	C	5C
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C4249	B	C	3B
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C4252	B	C	3C
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C4508	B	C	2B
C4509	B	C	2B
C4510	B	C	1B
C4511	A	C	2B
C6001	A	C	5B
C6003	A	C	5B
C6004	B	C	4A
C6005	B	C	4A
C6006	B	C	4A
C6007	A	C	3A
C6008	B	C	4A
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C6059	A	C	3A
C6060	B	C	4A
C6061	A	C	4A
C6062	B	C	3A
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C6068	A	C	5A
C6069	B	C	4A
C6070	B	C	5B
C6201	A	C	4B
CONNECTOR			
CN11	A	C	5B
CN12	A	C	5E
CN13	A	C	4E
CN14	A	C	2C
CN15	A	C	1C
CN16	A	C	1A
CN18	A	C	4A
CN21	B	C	5B
CN22	B	C	4D
CN23	B	C	1B
CN25	B	C	5D
CIRCUIT PROTECTOR			
CP6001	B	C	5B
CP6002	A	C	5B
CP6003	A	C	5B
CP6004	A	C	5C
DIODE			
D101	B	C	3B
D102	B	C	3B
D103	B	C	1A
D104	B	C	2B
D3001	B	C	5C
D3002	B	C	2A
D4201	B	C	3B
D4202	B	C	4B
D4203	B	C	4A
D4204	B	C	3C
D4205	B	C	4C
D4206	A	C	3B
D4207	A	C	3C
D4501	B	C	1B
D6001	B	C	4A
D6005	B	C	5A
D6007	A	C	5A
D6008	A	C	5A
D6010	A	C	4A
D6011	B	C	5A
DA101	A	C	2A
DA102	A	C	2B
DA103	A	C	1A
DA104	A	C	2C
DA106	B	C	3B
DA107	B	C	2A
IC			
IC101	A	C	2B
IC102	B	C	3C
IC103	B	C	3B
IC104	A	C	1A
IC105	B	C	1A
IC106	B	C	3A
IC107	B	C	2C
IC108	B	C	2A
IC109	B	C	1A
IC110	A	C	1A
IC3001	B	C	5D
IC3003	A	C	4D
IC3081	A	C	5C
IC4001	A	C	4E
IC4201	B	C	3B
IC4202	B	C	4B
IC4203	A	C	3B
IC4205	B	C	3C
IC4501	B	C	1B
IC6001	B	C	3A
IC6002	B	C	5A
COIL			
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L3001	A	C	5C
L3002	A	C	4C
L3003	B	C	5C
L3004	A	C	5C
L3006	A	C	4C
L3007	B	C	5C
L3009	A	C	5D
L3010	B	C	4C
L3011	A	C	5C
L3012	B	C	4C
L3013	A	C	4C
L3014	B	C	4E
L3015	B	C	4C
L3208	B	C	5C
L3231	B	C	4C
L3232	B	C	4C
L3252	B	C	5C
L4005	A	C	5D
L4006	A	C	5D
L4201	B	C	4B
L4202	B	C	4B
L4203	B	C	4A
L4204	B	C	4B
L4205	B	C	4A
L4206	B	C	4B
L4207	B	C	4B
L4501	A	C	1B
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L6001	A	C	5B
L6002	A	C	5B
L6003	A	C	4A
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L6007	A	C	5B
L6008	B	C	4B
L6009	A	C	5B
L6010	B	C	4B
L6011	A	C	4B
L6012	B	C	4A
L6013	B	C	5A
L6014	B	C	5B
L6016	A	C	5A
TRANSISTOR			
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Q102	B	C	2B
Q103	B	C	1B
Q104	B	C	1B
Q105	B	C	2C
Q106	B	C	2C
Q107	B	C	2C
Q108	B	C	2A
Q109	B	C	3B
Q110	B	C	3A
Q111	B	C	3A
Q112	B	C	3A
Q3002	A	C	5D
Q3006	B	C	4E
Q3008	A	C	5D
Q3009	A	C	5E
Q3011	A	C	5C
Q3012	A	C	5C
Q3081	B	C	5E
Q3082	B	C	5E
Q3083	B	C	4E
Q3084	B	C	4E
Q3085	B	C	5E
Q3086	B	C	4E
Q3087	A	C	4C
Q3088	A	C	4C
Q3089	A	C	4C
Q3090	B	C	4C
Q3091	B	C	4C
Q3092	B	C	4C
Q3093	A	C	4C
Q3094	A	C	4C
Q3095	A	C	4C
Q3096	A	C	4C
Q3097	B	C	5C
Q3231	B	C	4C
Q3232	B	C	5C
Q3251	A	C	5D
Q3252	A	C	5D
Q3303	B	C	5E
Q3304	B	C	5E

REF.No.	LOCATION		
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Q4012	A	C	5D
Q4013	A	C	4D
Q4014	B	C	5E
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Q4019	B	C	4E
Q4201	B	C	3B
Q4202	B	C	4A
Q4203	B	C	4A
Q4204	A	C	3A
Q4205	B	C	4C
Q4206	A	C	3C
Q4207	B	C	3B
Q4501	B	C	1C
Q4502	B	C	1C
Q4503	B	C	1C
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Q6024	B	C	5A
Q6201	A	C	4B
Q6202	A	C	5B
Q6203	A	C	4B
RESISTOR			
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R102	B	C	2C
R103	B	C	2B
R104	B	C	2B
R105	B	C	3B
R106	B	C	2B
R107	B	C	2B
R108	A	C	1A
R109	B	C	1B
R110	A	C	2B
R111	A	C	2B
R112	B	C	2B
R113	B	C	3A
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R6201	A	C	5B
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RA101	A	C	3A
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RA108	A	C	2A
RA3001	A	C	5D
RA3002	A	C	5D
TEST POINT			
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CL4002	B	C	5E
CL4003	B	C	5D
CL4004	B	C	5D
CL4005	A	C	5D
CL4006	A	C	4D
FL4001	B	C	4E
FL4002	B	C	5E
T6001	A	C	5A
TM4	A	C	5A
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X102	A	D	1A
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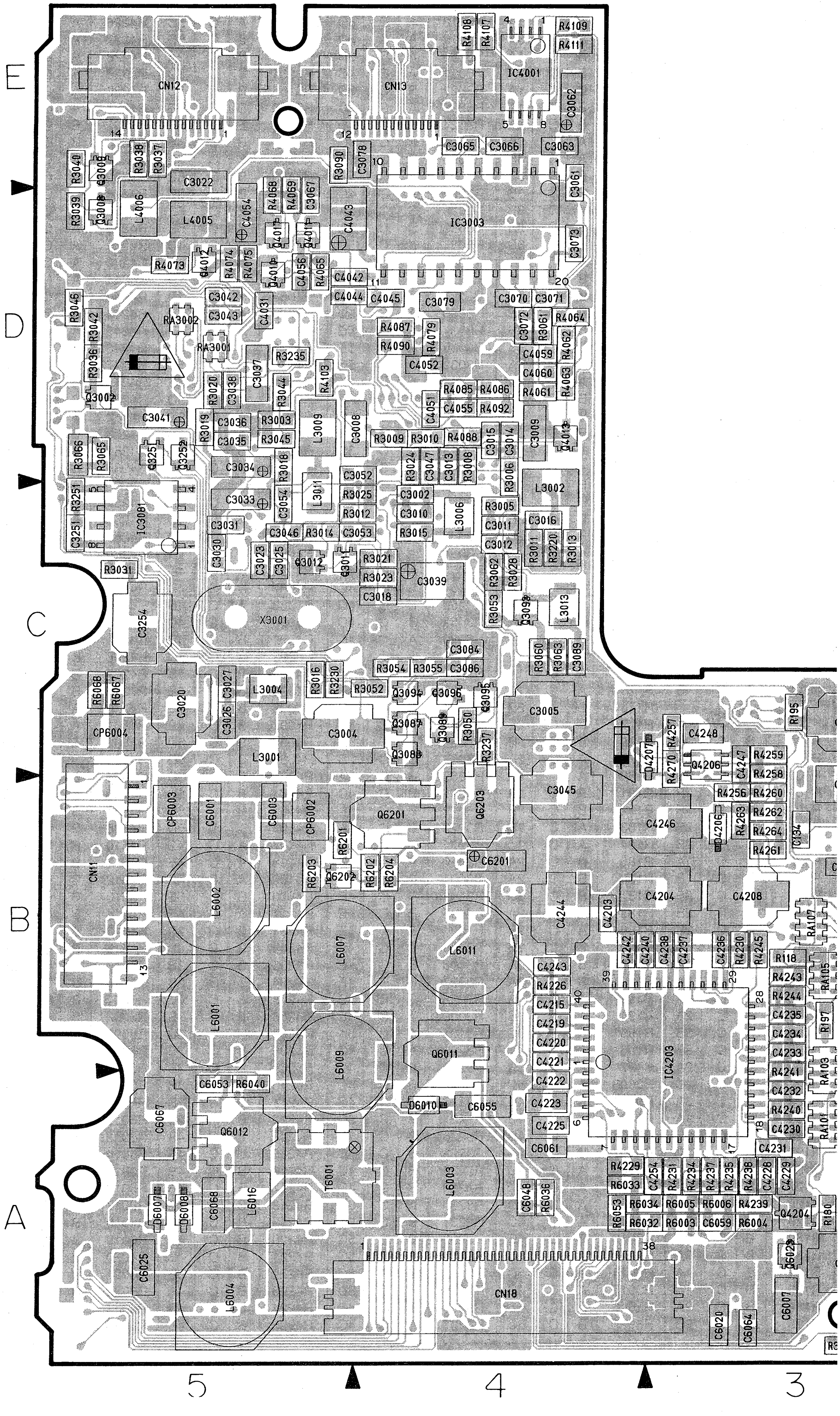
COMPONENT SIDE (A)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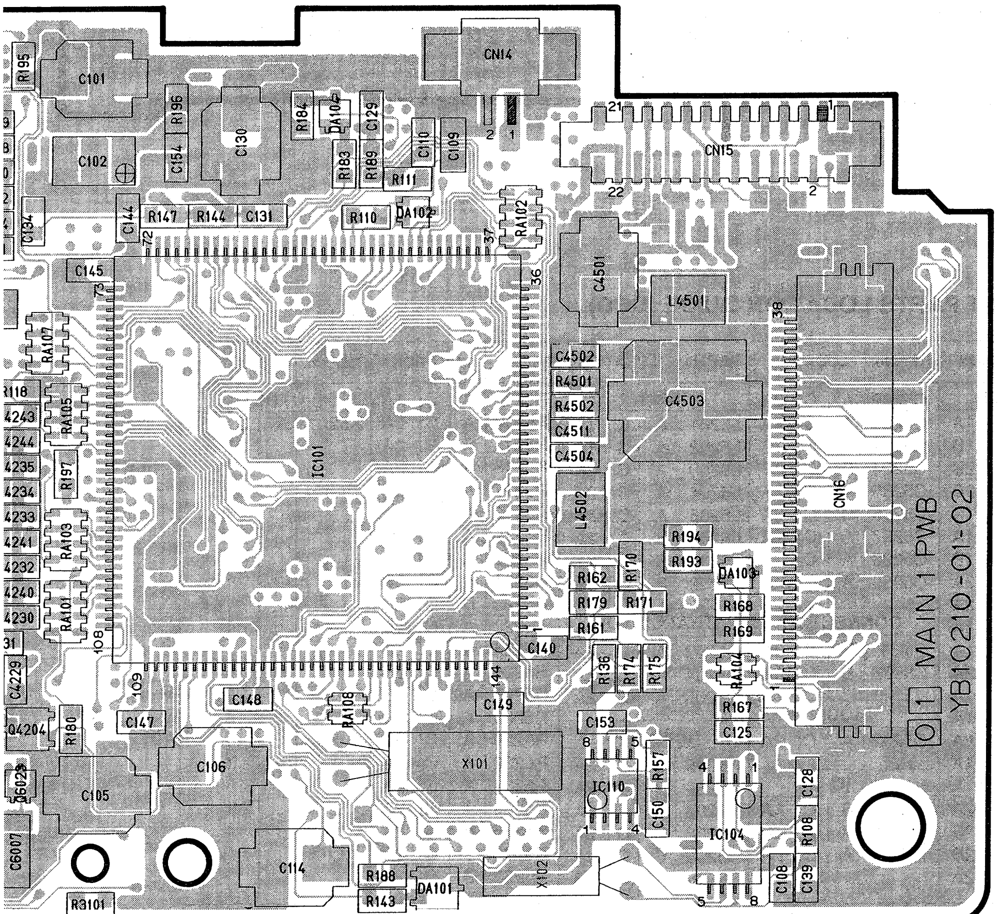
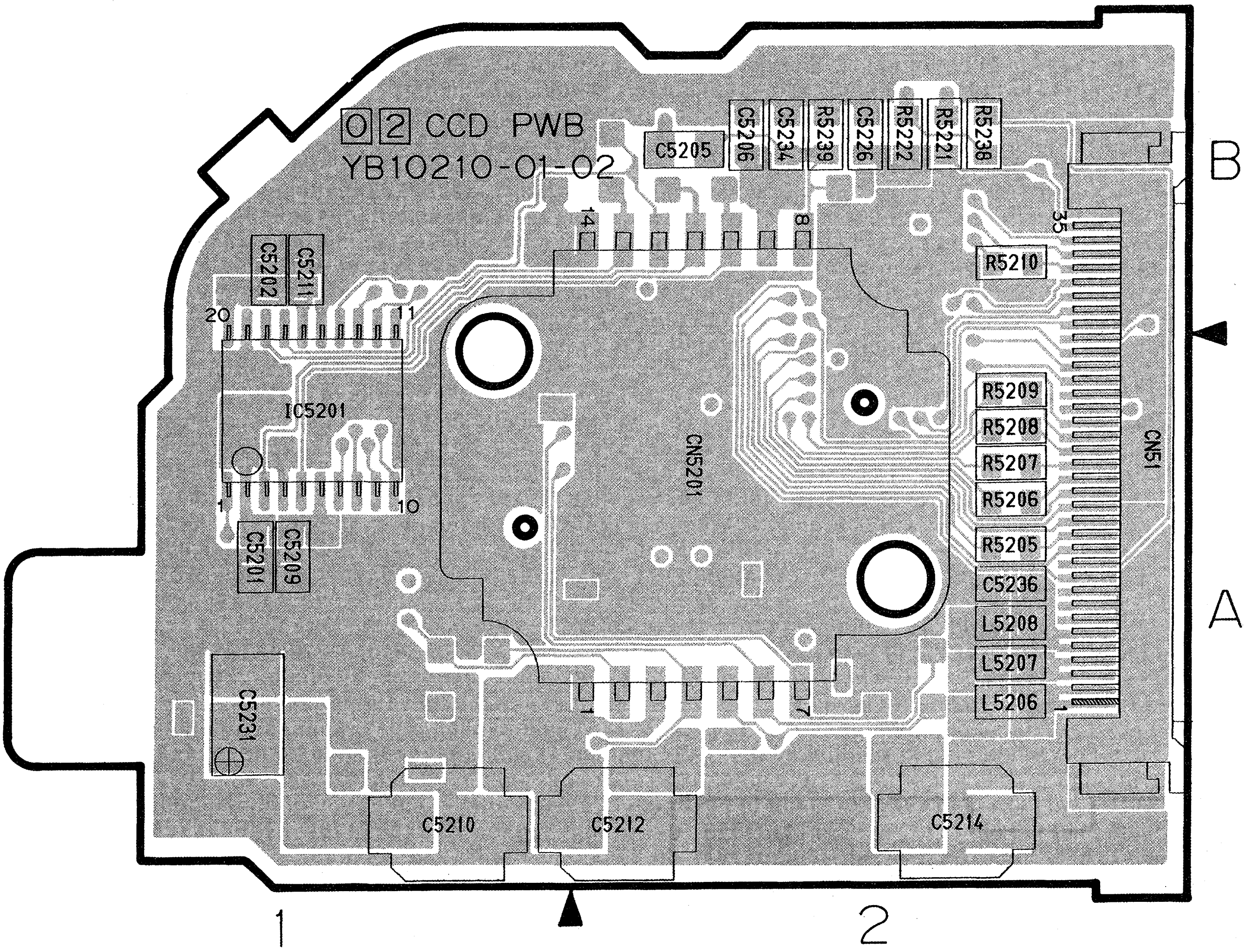
CP6003
C5001
C5003
CP6002
Q6201
Q6203
C4246
D4206
R4263
R4262
R4264
C134
R4261
CN11
R6201
R6203
Q6202
R6202
R6204
C6201
L6002
C4244
C4203
C4204
C4208
RA107
L6007
L6011
C4242
C4240
C4238
C4237
C4236
R4230
R4245
R118
RA105
C4243
R4226
C4215
C4219
C4220
C4221
C4222
C4223
C4225
IC4203
R4243
R4244
C4235
C4234
C4233
R4241
C4232
R4240
C4230
R197
RA103
RA101
L6001
L6009
Q6011
C6053
R6040
C6067
Q6012
D6010
C6055
C6061
C4231
T6001
L6003
C6048
R6036
R4229
R6033
C4254
R4231
R4234
R4237
R4235
R4238
C4228
C4229
D6007
D6008
C6068
L6016
R6034
R6005
R6006
R4239
R6053
R6032
R6003
C6059
R6004
Q4204
R180
C6025
L6004
CN18
C6029
C6007
C6020
C6064
14
1
12
1
10
1
11
20
4
1
5
8
5
4
8
1
1
13
39
29
40
28
6
18
7
17
1
38


MAIN 1 PWB
YB10210-01-02
0 1
CN14
CN15
CN16
IC101
IC104
IC110
X101
X102
C101
C102
C130
C4501
C4503
L4501
L4502
C105
C106
C114
R195
R196
C154
R184
DA104
C129
R183
R189
C110
C109
R111
DA102
RA102
R110
C144
R147
R144
C131
C134
C145
RA107
RA105
RA103
RA101
R197
R118
C4502
R4501
R4502
C4511
C4504
R194
R193
DA103
R168
R169
R162
R170
R179
R171
R161
R136
R174
R175
RA104
R167
C125
C140
C149
C148
C147
RA108
C153
R157
C150
C126
R108
C108
C139
R188
R143
DA101
R3101
R180
Q4204
C4229
C6007
1
2
3

4.12 CCD CIRCUIT BOARD

FOIL SIDE (B)

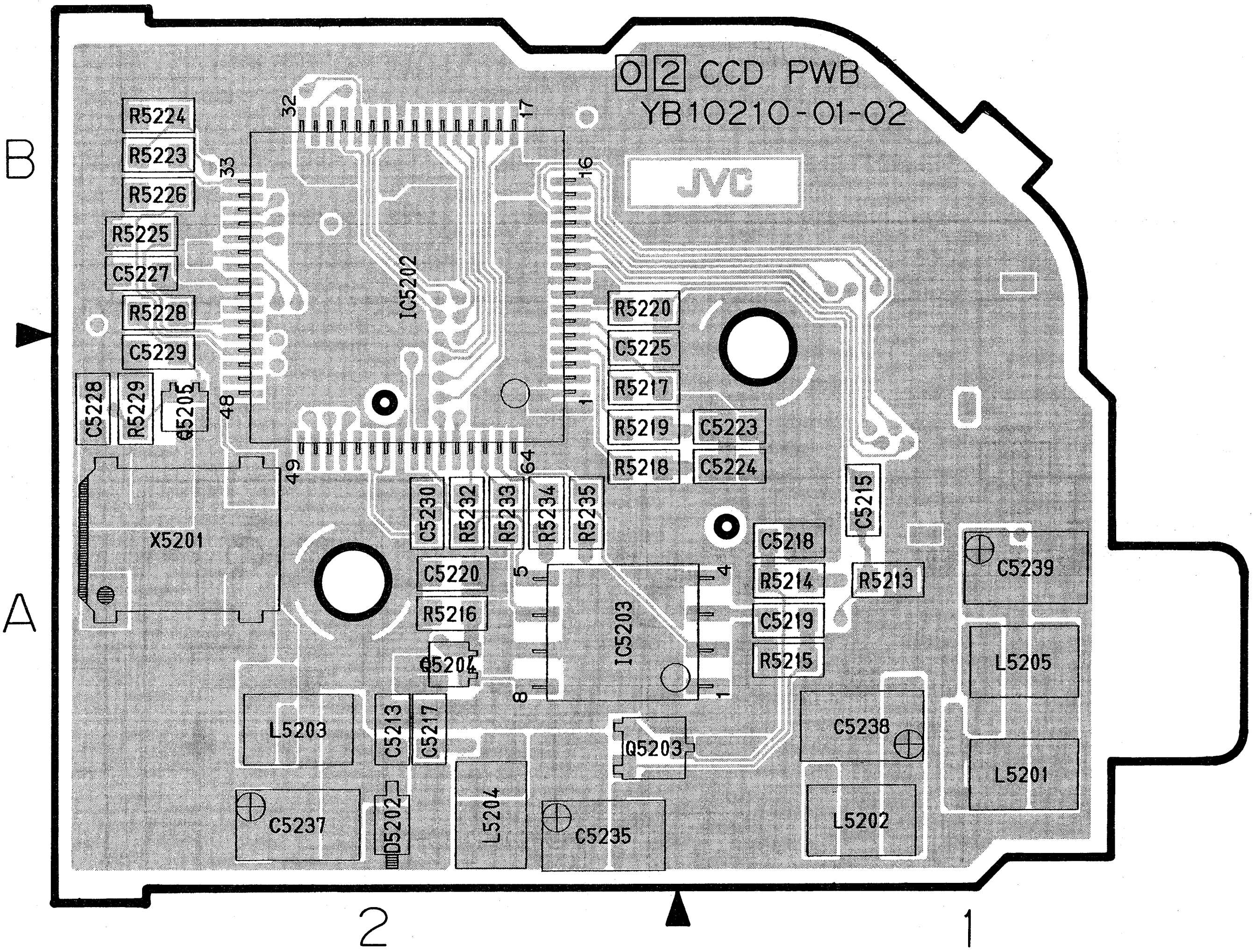


02 CCD PWB
YB10210-01-02
C5205
C5206
C5234
R5239
C5226
R5222
R5221
R5238
B
14
8
35
R5210
C5202
C5211
20
11
IC5201
1
10
CN5201
R5209
R5208
R5207
R5206
CN51
R5205
C5236
L5208
L5207
L5206
A
C5201
C5209
C5231
1
7
1
C5210
C5212
C5214
1
2

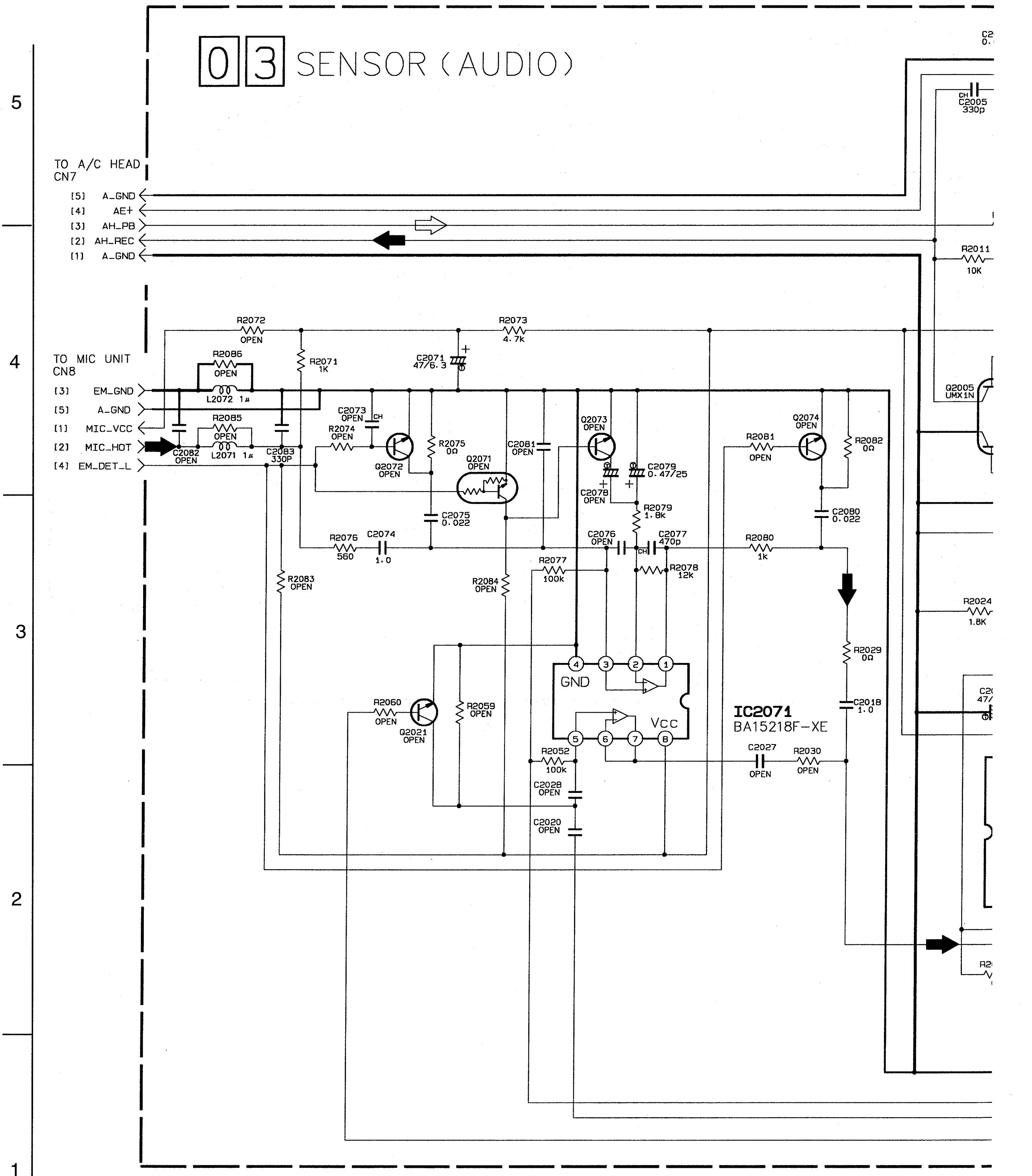
COMPONENT PARTS LOCATION GUIDE (CCD)

REF.No.	LOCATION		
CAPACITOR			
C5201	B	C	1A
C5202	B	C	1B
C5205	B	C	2B
C5206	B	C	2B
C5209	B	C	1A
C5210	B	C	1A
C5211	B	C	1B
C5212	B	C	2A
C5213	A	C	2A
C5214	B	C	2A
C5215	A	C	1A
C5217	A	C	2A
C5218	A	C	1A
C5219	A	C	1A
C5220	A	C	2A
C5223	A	C	1A
C5224	A	C	1A
C5225	A	C	2A
C5226	B	C	2B
C5227	A	C	2B
C5228	A	C	2A
C5229	A	C	2A
C5230	A	C	2A
C5231	B	C	1A
C5234	B	C	2B
C5235	A	C	2A
C5236	B	C	2A
C5237	A	C	2A
C5238	A	C	1A
C5239	A	C	1A
CONNECTOR			
CN51	B	C	2A
CN5201	B	C	2A
DIODE			
D5202	A	C	2A
IC			
IC5201	B	C	1A
IC5202	A	C	2B
IC5203	A	C	2A
COIL			
L5201	A	C	1A
L5202	A	C	1A
L5203	A	C	2A
L5204	A	C	2A
L5205	A	C	1A
L5206	B	C	2A
L5207	B	C	2A
L5208	B	C	2A
TRANSISTOR			
Q5203	A	C	2A
Q5204	A	C	2A
Q5205	A	C	2A
RESISTOR			
R5205	B	C	2A
R5206	B	C	2A
R5207	B	C	2A
R5208	B	C	2A
R5209	B	C	2A
R5210	B	C	2B
R5213	A	C	1A
R5214	A	C	1A
R5215	A	C	1A
R5216	A	C	2A
R5217	A	C	2A
R5218	A	C	2A
R5219	A	C	2A
R5220	A	C	2B
R5221	B	C	2B
R5222	B	C	2B
R5223	A	C	2B
R5224	A	C	2B
R5225	A	C	2B
R5226	A	C	2B
R5228	A	C	2B
R5229	A	C	2A
R5232	A	C	2A
R5233	A	C	2A
R5234	A	C	2A
R5235	A	C	2A
R5238	B	C	2B
R5239	B	C	2B
OTHER			
X5201	A	C	2A

COMPONENT SIDE (A)


0 2 CCD PWB
YB10210-01-02
JVC
B
A
2
1
R5224
R5223
R5226
R5225
C5227
R5228
C5229
C5228
R5229
Q5205
IC5202
32
17
33
16
48
1
49
64
R5220
C5225
R5217
R5219
C5223
R5218
C5224
C5215
X5201
C5230
R5232
R5233
R5234
R5235
C5218
R5214
R5213
C5239
C5220
R5216
5
4
IC5203
8
1
C5219
R5215
L5205
Q5204
C5238
L5203
C5213
C5217
Q5203
L5201
L5202
C5237
D5202
L5204
C5235

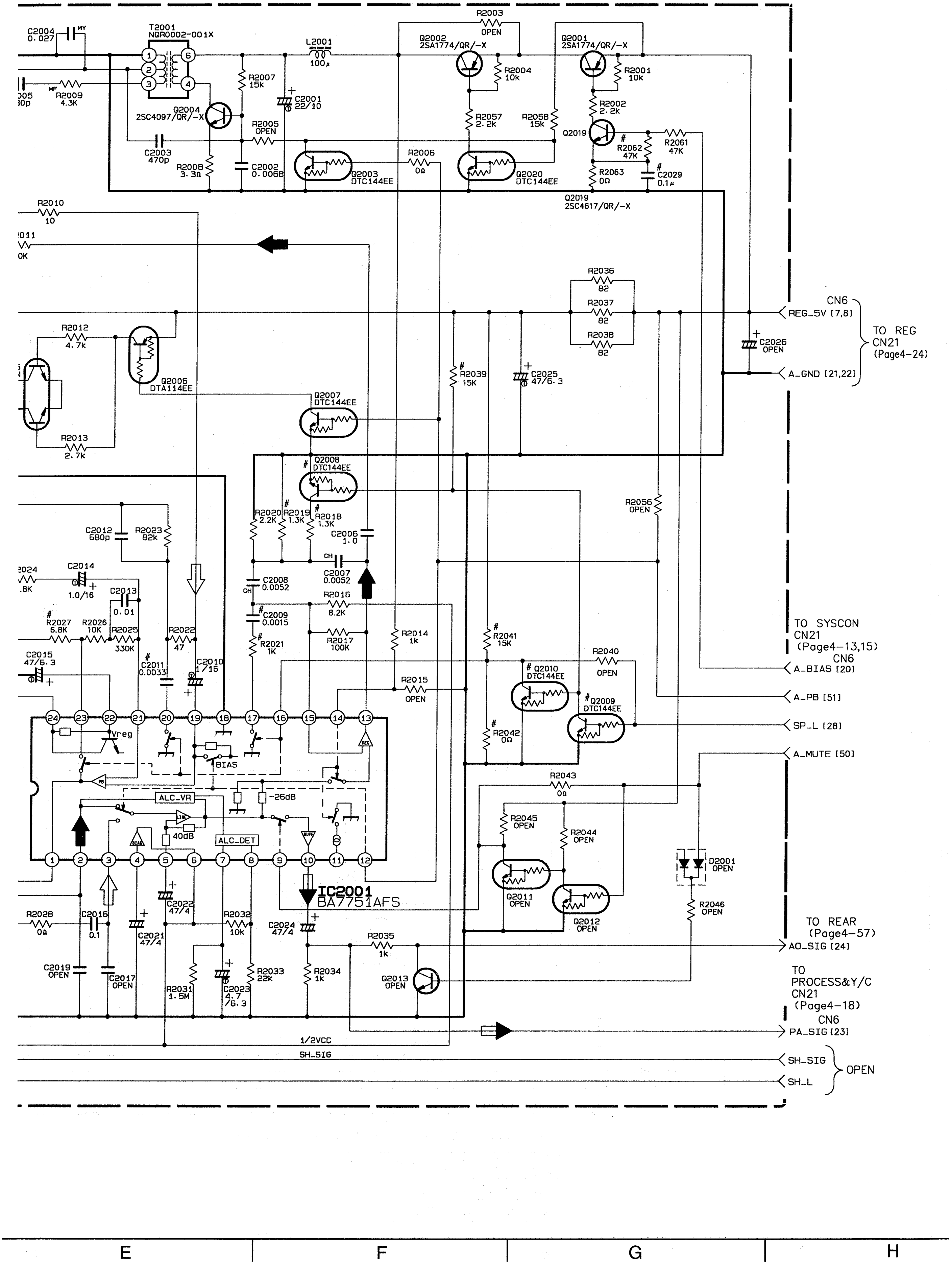
4.14 AUDIO SCHEMATIC DIAGRAM


5
4
3
2
1
03 SENSOR (AUDIO)
TO A/C HEAD
CN7
[5] A_GND
[4] AE+
[3] AH_PB
[2] AH_REC
[1] A_GND
TO MIC UNIT
CN8
[3] EM_GND
[5] A_GND
[1] MIC_VCC
[2] MIC_HOT
[4] EM_DET_L
R2072 OPEN
R2086 OPEN
L2072 1µ
R2085 OPEN
L2071 1µ
C2082 OPEN
C2083 330P
R2071 1K
C2071 47/6.3
R2073 4.7K
C2073 OPEN
CH
R2074 OPEN
Q2072 OPEN
R2075 0Ω
Q2071 OPEN
C2075 0.022
C2081 OPEN
R2076 560
C2074 1.0
R2083 OPEN
R2084 OPEN
R2077 100k
Q2073 OPEN
C2078 OPEN
C2079 0.47/25
R2079 1.8k
C2076 OPEN
C2077 470p
R2078 12k
Q2074 OPEN
R2081 OPEN
R2082 0Ω
C2080 0.022
R2080 1k
R2029 0Ω
C2018 1.0
IC2071
BA15218F-XE
GND
Vcc
C2027 OPEN
R2030 OPEN
R2052 100k
C2028 OPEN
C2020 OPEN
R2060 OPEN
Q2021 OPEN
R2059 OPEN
C2005 330p
R2011 10K
Q2005 UMX1N
R2024 1.8K

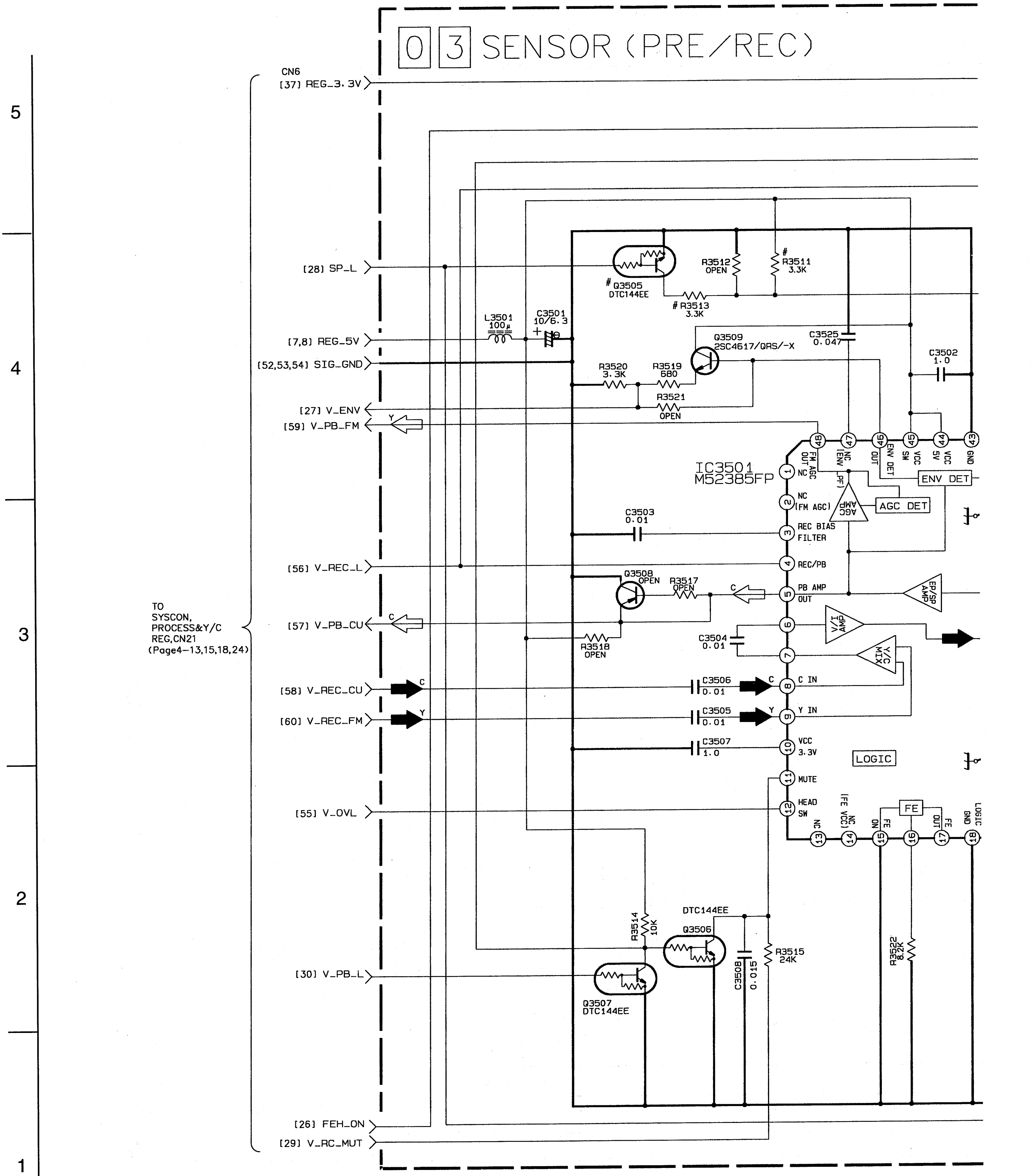
NOTE : COMPARISON CHART OF MODELS & MARKS (#)

MODELS \ REF. NO	Q2008	Q2009	Q2010	R2018	R2019	R2021	R2027	R2039	R2041	R2042	R2062	C2009	C2011	C2029
GR-AX285EG	OPEN	OPEN	OPEN	OPEN	USED	OPEN	OPEN	OPEN	OPEN	USED	OPEN	OPEN	OPEN	USED
GR-AX280BEK	USED	USED	USED	USED	OPEN	USED	USED	USED	USED	OPEN	USED	USED	USED	OPEN

A B C D

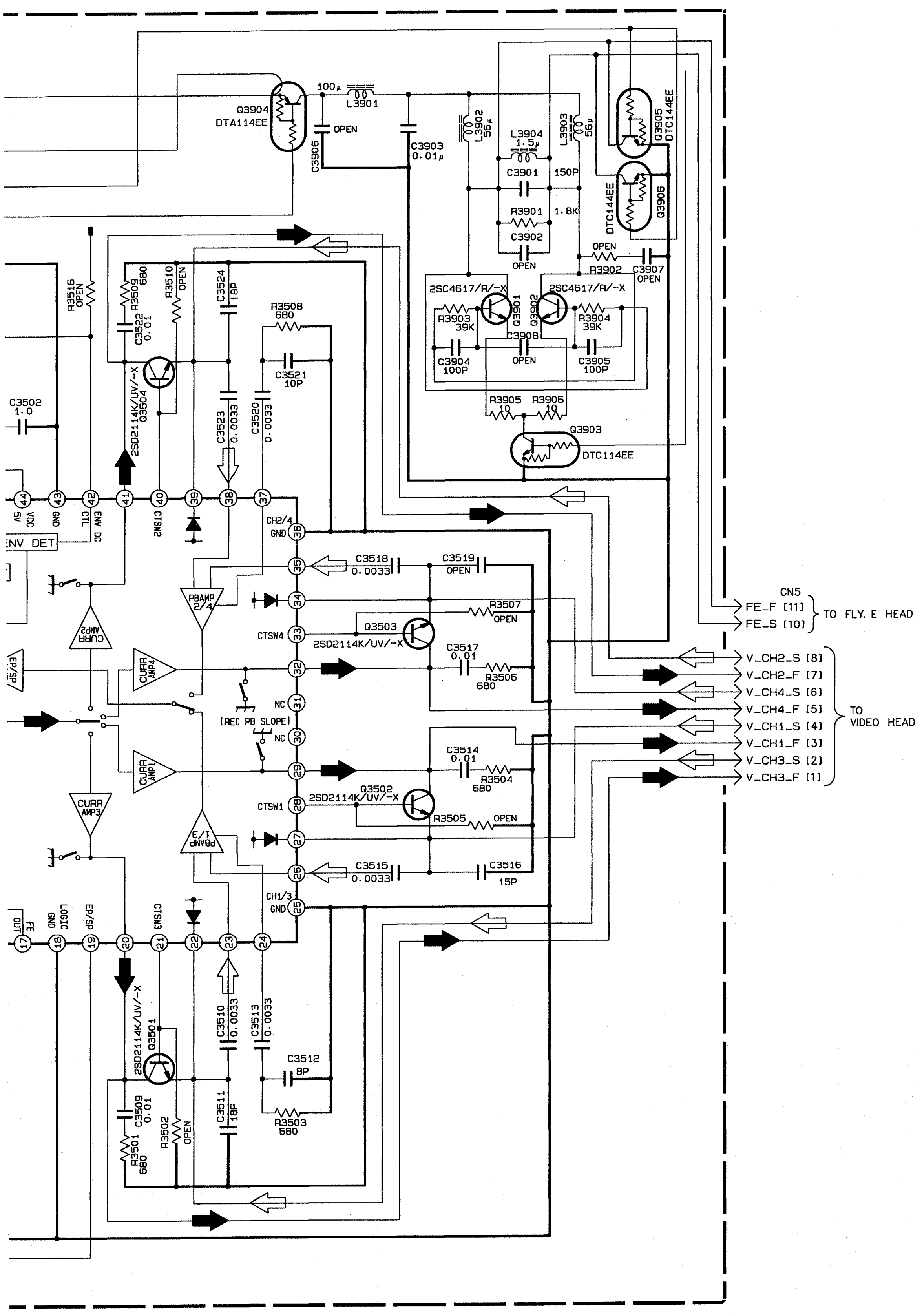

C2004
0.027
MY
T2001
NQR0002-001X
005
30p
MF
R2009
4.3K
Q2004
2SC4097/QR/-X
C2003
470p
R2008
3.3Ω
R2007
15k
R2005
OPEN
C2002
0.0068
L2001
100μ
C2001
22/10
R2003
OPEN
Q2002
2SA1774/QR/-X
R2004
10k
R2057
2.2k
R2006
0Ω
Q2003
DTC144EE
Q2020
DTC144EE
R2058
15k
Q2001
2SA1774/QR/-X
R2001
10k
R2002
2.2k
Q2019
R2062
47K
R2061
47K
R2063
0Ω
C2029
0.1μ
Q2019
2SC4617/QR/-X
R2010
10
2011
0K
R2036
82
R2037
82
R2038
82
CN6
REG_5V [7,8]
TO REG
CN21
(Page4-24)
C2026
OPEN
A_GND [21,22]
R2012
4.7k
Q2006
DTA114EE
R2013
2.7k
R2039
15K
C2025
47/6.3
Q2007
DTC144EE
Q2008
DTC144EE
R2056
OPEN
C2012
680p
R2023
82k
R2020
2.2K
R2019
1.3K
R2018
1.3K
C2006
1.0
CH
C2007
0.0052
C2008
0.0052
CH
2024
.8K
C2014
1.0/16
C2013
0.01
R2027
6.8K
R2026
10K
R2025
330K
R2022
47
C2011
0.0033
C2010
1/16
C2009
0.0015
R2016
8.2K
R2017
100K
R2021
1K
R2014
1k
R2015
OPEN
R2041
15K
R2040
OPEN
Q2010
DTC144EE
Q2009
DTC144EE
R2042
0Ω
TO SYSCON
CN21
(Page4-13,15)
CN6
A_BIAS [20]
A_PB [51]
SP_L [28]
A_MUTE [50]
C2015
47/6.3
24 23 22 21 20 19 18 17 16 15 14 13
Vreg
BIAS
REC
PB
ALC_VR
-26dB
40dB
ALC_DET
BIAS
1 2 3 4 5 6 7 8 9 10 11 12
IC2001
BA7751AFS
R2043
0Ω
R2045
OPEN
R2044
OPEN
Q2011
OPEN
Q2012
OPEN
D2001
OPEN
R2046
OPEN
R2028
0Ω
C2016
0.1
C2021
47/4
C2022
47/4
R2032
10k
C2024
47/4
R2035
1k
TO REAR
(Page4-57)
AO_SIG [24]
C2019
OPEN
C2017
OPEN
R2031
1.5M
C2023
4.7
/6.3
R2033
22k
R2034
1k
Q2013
OPEN
TO
PROCESS&Y/C
CN21
(Page4-18)
CN6
PA_SIG [23]
1/2VCC
SH_SIG
SH_SIG
SH_L
OPEN
E
F
G
H

4.15 PRE/REC SCHEMATIC DIAGRAM


03 SENSOR (PRE/REC)
CN6
[37] REG_3.3V
[28] SP_L
[7,8] REG_5V
[52,53,54] SIG_GND
[27] V_ENV
[59] V_PB_FM
[56] V_REC_L
[57] V_PB_CU
[58] V_REC_CU
[60] V_REC_FM
[55] V_OVL
[30] V_PB_L
[26] FEH_ON
[29] V_RC_MUT
TO SYSCON, PROCESS&Y/C REG,CN21 (Page4-13,15,18,24)
#Q3505 DTC144EE
R3512 OPEN
# R3511 3.3K
# R3513 3.3K
L3501 100μ
C3501 10/6.3
Q3509 2SC4617/QRS/-X
C3525 0.047
C3502 1.0
R3520 3.3K
R3519 680
R3521 OPEN
IC3501 M52385FP
C3503 0.01
Q3508 OPEN
R3517 OPEN
R3518 OPEN
C3504 0.01
C3506 0.01
C3505 0.01
C3507 1.0
R3514 10K
DTC144EE Q3506
C3508 0.015
R3515 24K
R3522 8.2K
Q3507 DTC144EE
NC
NC (FM AGC)
REC BIAS FILTER
REC/PB
PB AMP OUT
C IN
Y IN
VCC 3.3V
MUTE
HEAD SW
FM AGC OUT
NC (ENV LPF)
ENV DET OUT
SW
VCC 5V
VCC
GND
NC
NC (FE VCC)
FE ON
FE OUT
LOGIC GND
ENV DET
AGC DET
AGC AMP
EP/SP AMP
V/I AMP
Y/C MIX
LOGIC
FE
5
4
3
2
1
A
B
C
D

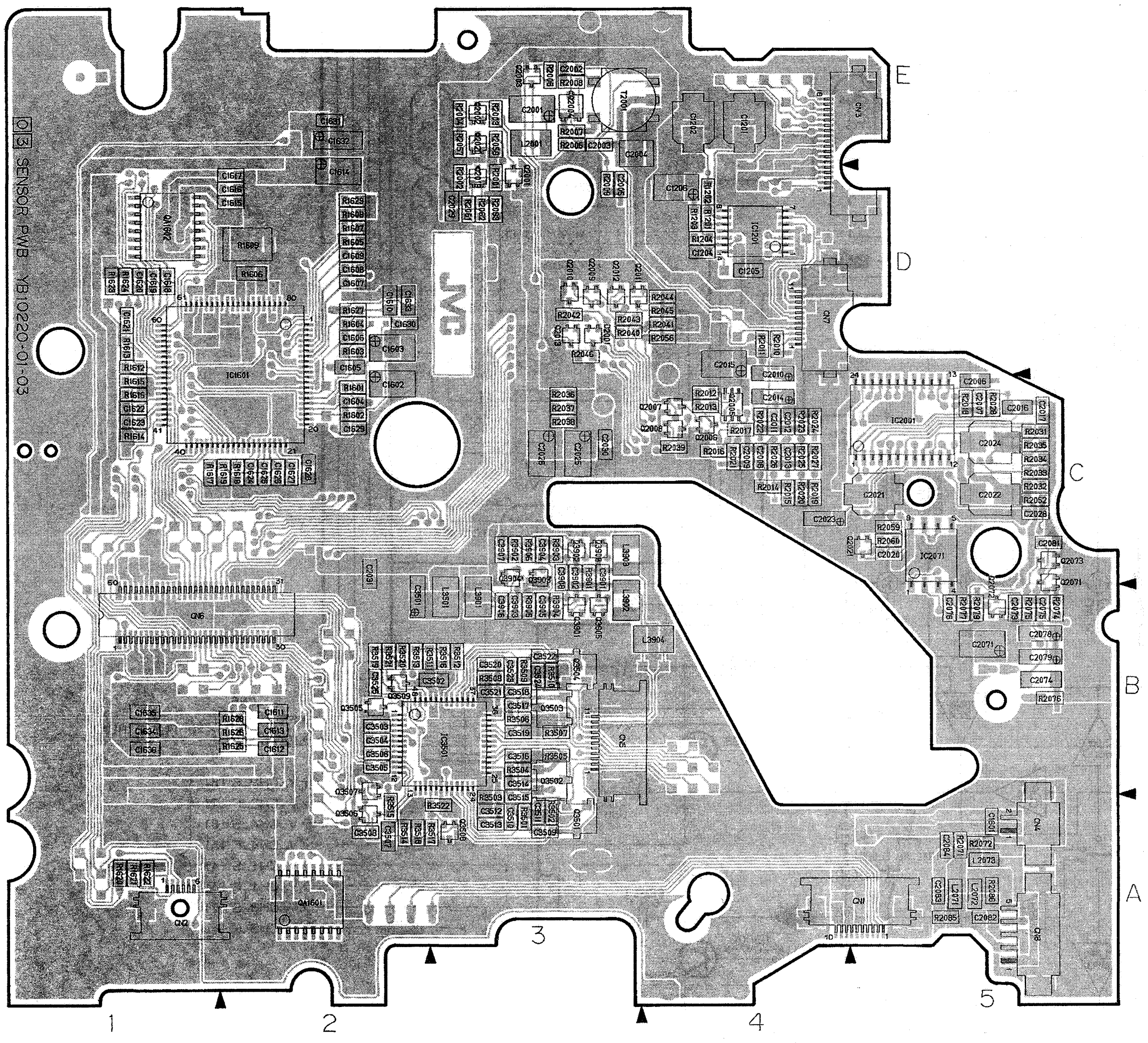
NOTE : COMPARISON CHART OF MODELS & MARKS (#)

REF. NO MODELS	Q3505	R3511	R3513
GR-AX285EG	OPEN	OPEN	OPEN
GR-AX280BEK	USED	USED	USED


Q3904
DTA114EE
100μ
L3901
OPEN
C3906
C3903
0.01μ
L3902
56μ
L3904
1.5μ
L3903
56μ
C3901
150P
R3901
1.8K
C3902
OPEN
Q3905
DTC144EE
DTC144EE
Q3906
OPEN
R3902
C3907
OPEN
2SC4617/R/-X
Q3901
2SC4617/R/-X
Q3902
R3903
39K
R3904
39K
C3908
OPEN
C3904
100P
C3905
100P
R3905
10
R3906
10
Q3903
DTC114EE
R3516
OPEN
R3509
680
C3522
0.01
R3510
OPEN
C3524
18P
R3508
680
C3521
10P
2SD2114K/UV/-X
Q3504
C3523
0.0033
C3520
0.0033
C3502
1.0
44 VCC 5V
43 GND
42 ENV DC CTL
41
40 CTSW2
39
38
37
ENV DET
CH2/4 GND 36
35
34
CTSW4 33
32
NC 31
NC 30
29
CTSW1 28
27
26
CH1/3 GND 25
C3518
0.0033
C3519
OPEN
R3507
OPEN
Q3503
2SD2114K/UV/-X
C3517
0.01
R3506
680
PBAMP 2/4
CURR AMP2
CURR AMP4
EP/SP
(REC PB SLOPE)
CURR AMP1
CURR AMP3
PBAMP 1/3
C3514
0.01
R3504
680
Q3502
2SD2114K/UV/-X
R3505
OPEN
C3515
0.0033
C3516
15P
17 FE OUT
18 LOGIC GND
19 EP/SP
20
21 CTSW3
22
23
24
2SD2114K/UV/-X
Q3501
C3510
0.0033
C3513
0.0033
C3512
8P
C3509
0.01
R3501
680
R3502
OPEN
C3511
18P
R3503
680
CN5
FE_F [11]
FE_S [10]
TO FLY. E HEAD
V_CH2_S [8]
V_CH2_F [7]
V_CH4_S [6]
V_CH4_F [5]
V_CH1_S [4]
V_CH1_F [3]
V_CH3_S [2]
V_CH3_F [1]
TO VIDEO HEAD

4.18 SENSOR CIRCUIT BOARD

FOIL SIDE (B)



COMPONENT PARTS LOCATION GUIDE (SENSOR)

REF.No.	LOCATION		
CAPACITOR			
C1201	B	C	4E
C1202	B	C	4E
C1204	B	C	4D
C1205	B	C	4D
C1206	B	C	4D
C1601	B	C	5A
C1602	B	C	2C
C1603	B	C	2D
C1604	B	C	2C
C1605	B	C	2D
C1606	B	C	2D
C1607	B	C	2D
C1608	B	C	2D
C1609	B	C	2D
C1610	B	C	2D
C1611	B	C	2B
C1612	B	C	2B
C1613	B	C	2B
C1614	B	C	2D
C1615	B	C	2D
C1616	B	C	2D
C1617	B	C	2D
C1618	B	C	1D
C1619	B	C	1D
C1620	B	C	1D
C1621	B	C	1D
C1622	B	C	1C
C1623	B	C	1C

REF.No.	LOCATION		
C1624	B	C	2C
C1625	B	C	2C
C1626	B	C	2C
C1627	B	C	2C
C1628	B	C	2C
C1629	B	C	2C
C1630	B	C	2D
C1631	B	C	2E
C1632	B	C	2E
C1633	B	C	2D
C1634	B	C	1B
C1635	B	C	1B
C1636	B	C	1B
C2001	B	C	3E
C2002	B	C	3E
C2003	B	C	3E
C2004	B	C	3E
C2005	B	C	3D
C2006	B	C	5C
C2007	B	C	5C
C2008	B	C	4C
C2009	B	C	4C
C2010	B	C	4D
C2011	B	C	4C
C2012	B	C	4C
C2013	B	C	4C
C2014	B	C	4C
C2015	B	C	4D
C2016	B	C	5C

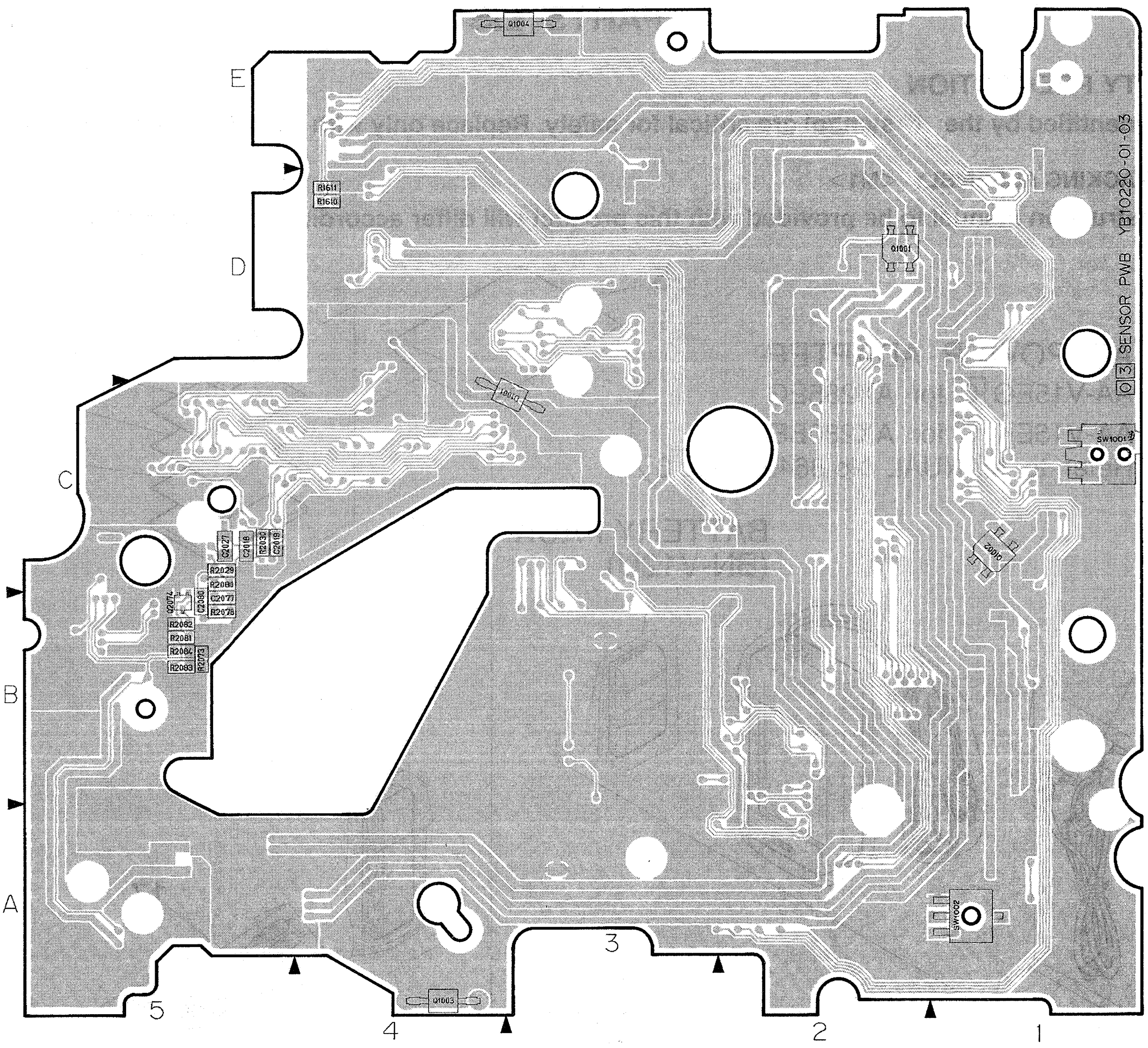
REF.No.	LOCATION		
C2017	B	C	5C
C2018	A	C	5C
C2019	A	C	5C
C2020	B	C	5C
C2021	B	C	5C
C2022	B	C	5C
C2023	B	C	4C
C2024	B	C	5C
C2025	B	C	3C
C2026	B	C	3C
C2027	A	C	5C
C2028	B	C	5C
C2029	B	C	3D
C2030	B	C	3C
C2031	B	C	2C
C2071	B	C	5B
C2073	B	C	5B
C2074	B	C	5B
C2075	B	C	5B
C2076	B	C	5B
C2077	A	C	5B
C2078	B	C	5B
C2079	B	C	5B
C2080	A	C	5B
C2081	B	C	5C
C2082	B	C	5A
C2083	B	C	5A
C2084	B	C	5A
C3501	B	C	2B

REF.No.	LOCATION		
C3502	B	C	3B
C3503	B	C	2B
C3504	B	C	2B
C3505	B	C	2B
C3506	B	C	2B
C3507	B	C	2A
C3508	B	C	2A
C3509	B	C	3A
C3510	B	C	3A
C3511	B	C	3A
C3512	B	C	3A
C3513	B	C	3A
C3514	B	C	3B
C3515	B	C	3B
C3516	B	C	3B
C3517	B	C	3B
C3518	B	C	3B
C3519	B	C	3B
C3520	B	C	3B
C3521	B	C	3B
C3522	B	C	3B
C3523	B	C	3B
C3524	B	C	3B
C3525	B	C	2B
C3901	B	C	3C
C3902	B	C	3C
C3903	B	C	3B
C3904	B	C	3C
C3905	B	C	3B

REF.No.	LOCATION		
C3906	B	C	3B
C3907	B	C	3C
C3908	B	C	3C
CONNECTOR			
CN1	B	C	5A
CN2	B	C	1A
CN3	B	C	4D
CN4	B	C	5A
CN5	B	C	3B
CN6	B	C	1B
CN7	B	C	4D
CN8	B	C	5A
DIODE			
D1001	A	D	3C
D2001	B	C	3D
IC			
IC1201	B	C	4D
IC1601	B	C	2D
IC2001	B	C	5C
IC2071	B	C	5C
IC3501	B	C	3B
COIL			
L2001	B	C	3E
L2071	B	C	5A
L2072	B	C	5A

REF.No.	LOCATION		
L2073	B	C	5A
L3501	B	C	3B
L3901	B	C	3B
L3902	B	C	3B
L3903	B	C	3C
L3904	B	C	4B
TRANSISTOR			
Q1001	A	C	2D
Q1002	A	C	1C
Q1003	A	D	4A
Q1004	A	D	3E
Q2001	B	C	3D
Q2002	B	C	3E
Q2003	B	C	3E
Q2004	B	C	3E
Q2005	B	C	4C
Q2006	B	C	4C
Q2007	B	C	4C
Q2008	B	C	4C
Q2009	B	C	3D
Q2010	B	C	3D
Q2011	B	C	3D
Q2012	B	C	3D
Q2013	B	C	3D
Q2019	B	C	3D
Q2020	B	C	3E
Q2021	B	C	5C
Q2071	B	C	5C

COMPONENT SIDE (A)



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Q2073	B	C	5C	R1605	B	C	2D	R2005	B	C	3E	R2034	B	C	5C	R2078	A	C	5B	R3521	B	C	2B
Q2074	A	C	5B	R1606	B	C	2D	R2006	B	C	3E	R2035	B	C	5C	R2079	B	C	5B	R3522	B	C	3A
Q3501	B	C	3A	R1607	B	C	2D	R2007	B	C	3E	R2036	B	C	3C	R2080	A	C	5C	R3901	B	C	3C
Q3502	B	C	3B	R1608	B	C	2D	R2008	B	C	3E	R2037	B	C	3C	R2081	A	C	5B	R3902	B	C	3C
Q3503	B	C	3B	R1609	B	C	2D	R2009	B	C	3D	R2038	B	C	3C	R2082	A	C	5B	R3903	B	C	3C
Q3504	B	C	3B	R1610	A	C	4D	R2010	B	C	4D	R2039	B	C	4C	R2083	A	C	5B	R3904	B	C	3B
Q3505	B	C	2B	R1611	A	C	4D	R2011	B	C	4D	R2040	B	C	3D	R2084	A	C	5B	R3905	B	C	3B
Q3506	B	C	2A	R1612	B	C	1D	R2012	B	C	4C	R2041	B	C	4D	R2085	B	C	5A	**OTHER**			
Q3507	B	C	2B	R1613	B	C	1D	R2013	B	C	4C	R2042	B	C	3D	R2086	B	C	5A				
Q3508	B	C	3A	R1614	B	C	1C	R2014	B	C	4C	R2043	B	C	3D	R3501	B	C	3A	SW1001	A	C	1C
Q3509	B	C	2B	R1615	B	C	1C	R2015	B	C	4C	R2044	B	C	4D	R3502	B	C	3A	SW1002	A	C	1A
Q3901	B	C	3B	R1616	B	C	1C	R2016	B	C	4C	R2045	B	C	4D	R3503	B	C	3B				
Q3902	B	C	3C	R1617	B	C	1C	R2017	B	C	4C	R2046	B	C	3D	R3504	B	C	3B				
Q3903	B	C	3C	R1618	B	C	2C	R2018	B	C	5C	R2052	B	C	5C	R3505	B	C	3B				
Q3904	B	C	3C	R1619	B	C	2C	R2019	B	C	4C	R2056	B	C	4D	R3506	B	C	3B				
Q3905	B	C	3B	R1620	B	C	1A	R2020	B	C	4C	R2057	B	C	3E	R3507	B	C	3B				
Q3906	B	C	3C	R1621	B	C	1A	R2021	B	C	4C	R2058	B	C	3E	R3508	B	C	3B				
QA1601	B	C	2A	R1622	B	C	1A	R2022	B	C	4C	R2059	B	C	5C	R3509	B	C	3B				
QA1602	B	C	1D	R1623	B	C	1D	R2023	B	C	4C	R2060	B	C	5C	R3510	B	C	3B				
RESISTOR				R1624	B	C	1D	R2024	B	C	4C	R2061	B	C	3D	R3511	B	C	2B				
				R1625	B	C	2B	R2025	B	C	4C	R2062	B	C	3D	R3512	B	C	3B				
R1201	B	C	4D	R1626	B	C	2B	R2026	B	C	4C	R2063	B	C	3D	R3513	B	C	2B				
R1202	B	C	4D	R1627	B	C	2D	R2027	B	C	4C	R2071	B	C	5A	R3514	B	C	2A				
R1203	B	C	4D	R1628	B	C	2B	R2028	B	C	5C	R2072	B	C	5A	R3515	B	C	2A				
R1204	B	C	4D	R1629	B	C	2D	R2029	A	C	5C	R2073	A	C	5B	R3516	B	C	3B				
R1601	B	C	2C	R2001	B	C	3D	R2030	A	C	5C	R2074	B	C	5B	R3517	B	C	2A				
R1602	B	C	2C	R2002	B	C	3D	R2031	B	C	5C	R2075	B	C	5B	R3518	B	C	2A				
R1603	B	C	2D	R2003	B	C	3E	R2032	B	C	5C	R2076	B	C	5B	R3519	B	C	2B				

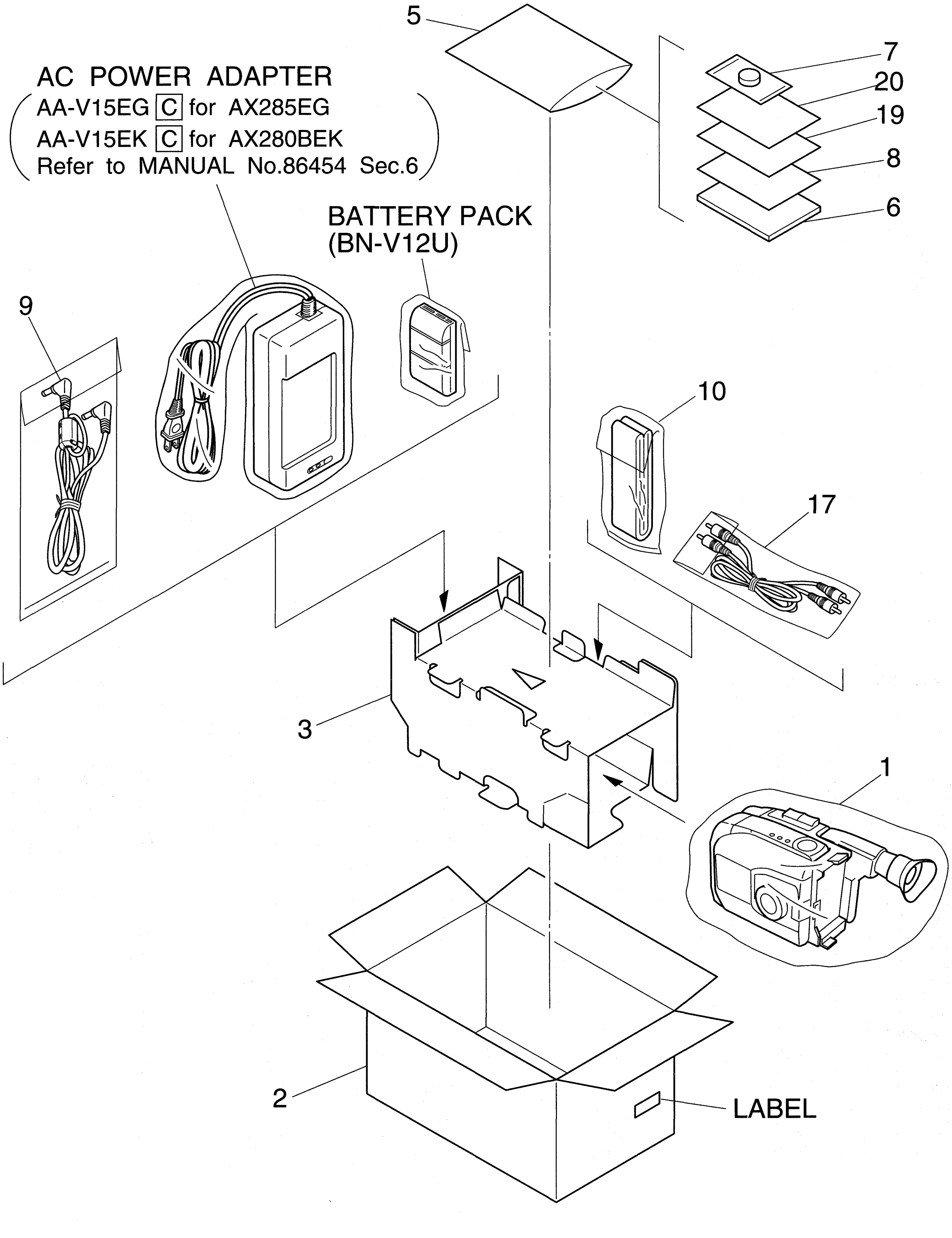
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.



AC POWER ADAPTER
AA-V15EG C for AX285EG
AA-V15EK C for AX280BEK
Refer to MANUAL No.86454 Sec.6
BATTERY PACK
(BN-V12U)
5
7
20
19
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9
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17
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1
2
LABEL

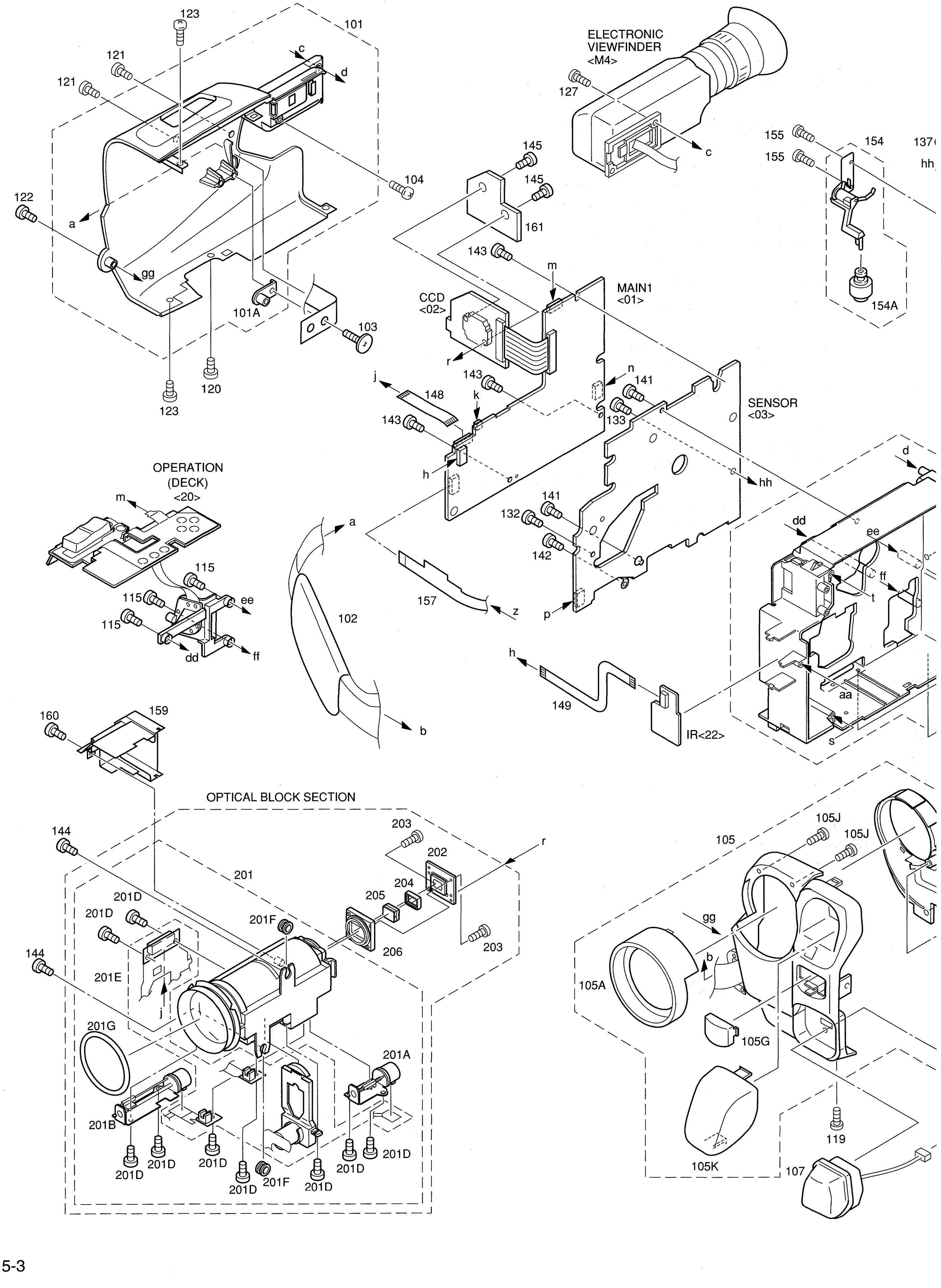
PACKING ASSEMBLY <M1>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	LY30023-002A	POLY BAG
2	LY30337-050A	PACKING CASE,AX285EG
	LY30337-051A	PACKING CASE,AX280BEK
3	LY30338-001B	CUSHION
5	QPA02003006	POLY BAG,AX285EG
	YQM30061-3	POLY BAG,AX280BEK
⚠ 6	LYT0032-001D	IB(EN.GE),AX285EG
⚠	LYT0032-002D	IB(FR.DU),AX285EG
⚠	LYT0032-003D	IB(SP.IT),AX285EG
⚠	LYT0032-004D	IB(DA.FI),AX285EG
⚠	LYT0032-005D	IB(SW.NO),AX285EG
⚠	LYT0033-001A	IB(EN),AX280BEK
⚠ 7	PECA0903	LI BATTERY
8	BT-54008-2	GUARANTEE CARD
9	YS30854C	CABLE ASSY, DC CORD
10	LY20186-001A	SHOULDER STRAP
17	PEAC0362-150	CABLE ASSY(AUDIO/VIDEO),AX285EG
19	LYT0368-001A	SHEET(ATT.)
⚠ 20	LYT0307-001A	SHEET(ATTENTION),AX280BEK

- INSTRUCTIONS

EN .... ENGLISH
FR .... FRENCH
GE ...... GERMAN
DU ...... DUTCH
SP .... SPANISH
IT .... ITALIAN
SW ...... SWEDISH
DA .... DANISH
FI .... FINNISH
NO ...... NORWEGIAN

5.2 FINAL ASSEMBLY <M2>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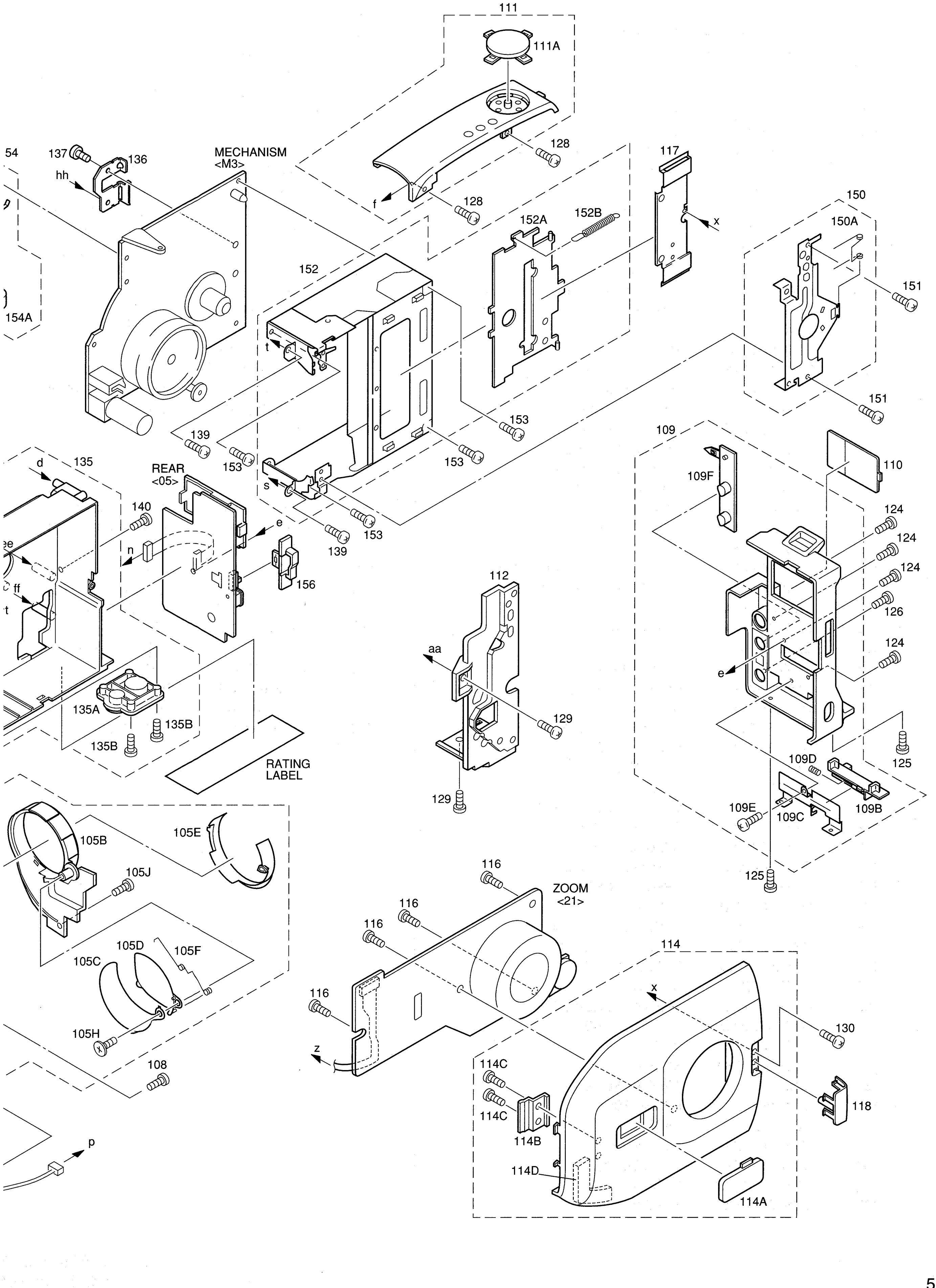
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RATING
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* * *

FINAL ASSEMBLY <M2>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	101	LY10044-003A	LOWER CASE ASSY
	101A	LY40081-001A	CAP
	102	LY20014-001A	GRIP BELT
	103	LY30018-003A	SPECIAL SCREW
	104	QYSLSF2055D	SPECIAL SCREW
	105	LY10046-003B	FRONT COVER ASSY
	105A	LY30311-001A	HOOD
	105B	LY20128-001A	GUIDE(SHUTTER)
	105C	LY30313-001A	SHUTTER(1)
	105D	LY30314-001A	SHUTTER(2)
	105E	LY30315-001A	KNOB(SHUTTER)
	105F	LY40187-001A	TORSION SPRING
	105G	LY30533-001A	IR WINDOW
	105H	YQ43762	SPECIAL SCREW
	105J	QYSLSF2050Z	SCREW,X3
	105K	LY30317-001A	COVER(LIGHT)
	107	LY20082-001B	MICROPHONE
	108	QYSLSF2055D	SPECIAL SCREW
⚠	109	LY10049-003C	REAR COVER ASSY
	109B	YQ32079	KNOB(B.RELEASE)
	109C	LY30318-001A	BKT(B.RELEASE)
	109D	LY30002-026A	COMPRES.SPRING
	109E	QYSLSF2040D	SCREW
	109F	LY30319-001A	COVER(JACK)
	110	YQ31821-1-4	CAP(LITHIUM)
	111	LY20090-006A	TOP COVER ASSY,AX280BEK
		LY20090-078A	TOP COVER ASSY,AX285EG
	111A	LY30324-001A	BUTTON(PLAY)
⚠	112	LY20092-002A	UPPER CASE
⚠	114	LY10054-001B	CASS.COVER ASSY
	114A	LY30326-002A	LCD WINDOW
	114B	LY30327-001A	HINGE(C.COVER)
	114C	QYSLSF2055D	SPECIAL SCREW,X2
	114D	LY40071-001A	SPACER(C. COVER)
	115	QYSLSF2055D	SPECIAL SCREW,X3
	116	QYSLSF2055D	SPECIAL SCREW,X4
	117	LY30333-001A	BKT(C.COVER)
	118	LY40190-001A	BUTTON(PUSH)ASSY
	119	QYSLSF2055D	SPECIAL SCREW
	120	QYSLSF2055D	SPECIAL SCREW
	121	QYSLSF2055D	SPECIAL SCREW,X2
	122	QYSLSF2055D	SPECIAL SCREW
	123	QYSLSF2055D	SPECIAL SCREW,X2
	124	QYSLSF2055D	SPECIAL SCREW,X4
	125	QYSLSF2055D	SPECIAL SCREW,X2
	126	QYSLSF2055D	SPECIAL SCREW
	127	QYSLSF20A0D	SCREW
	128	QYSLSF2055D	SPECIAL SCREW,X2
	129	QYSLSF2055D	SPECIAL SCREW,X2
	130	QYSLSP2030D	SCREW
	132	QYSPSPU1760Z	SCREW
	133	LY30019-010A	SPECIAL SCREW
⚠	135	LY20094-001C	FRAME ASSY
	135A	YQ31843	BASE
	135B	QYSLSF2060D	SCREW,X2
	136	LY30335-001A	BKT(MECHA)
	137	QYSPSTU1725M	SCREW
	139	QYSLSF1750D	SCREW,X2
	140	QYSLSP2030D	SCREW
	141	QYSPSTU1750M	SCREW,X2
	142	QYSPSTU1725M	SCREW
	143	QYSLSF1750D	SCREW,X3
	144	YQ43762-4	SCREW,X2
	145	LY30018-009A	SPECIAL SCREW,X2
	148	QUQ105-2206AA	FFC WIRE,MAIN1 CN15-OP
	149	QAL0084-001	FPC,MAIN1 CN23-IR
	150	LY30514-001F	FRONT FRAME ASSY
	150A	YQ44144-1-1	TAPE GUIDE
	151	SPSH1725M	SCREW,X2
	152	YQ31752E-25	CASSETTE HOUSING ASSY
	152A	LY20093-001A	C.COVER INSIDE
	152B	LY40032-001B	TENSION SPRING
	153	YQ44457-3	SCREW,X4
	154	YQ44027A-7	CLEANER ASSY
	154A	YQ44109A-2	CLEANER ROLLER ASSY
	155	LY40320-001A	SPECIAL SCREW,X2
	156	LY30121-001B	KNOB/EJECT
	157	QAL0085-001	FPC,ZOOM-MAIN1 CN16
	159	LY30521-001A	SHIELD CASE ASSY
	160	QYSLSF2050D	SCREW
	161	LY40972-001A	SHIELD PLATE

– OPTICAL BLOCK SECTION –

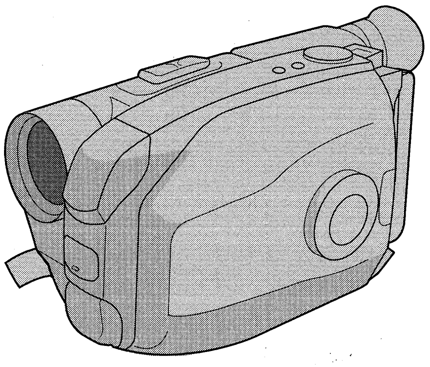
# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	201	LY30526-001C	OP BLOCK ASSY
	201A	PTY30526-002	FOCUS MOTOR UNIT
	201B	PTY30526-001	ZOOM MOTOR UNIT
	201D	PTY30151-016	SCREW,X9
	201E	PTY30526-006	IRIS UNIT,INCL.FPC
	201F	PTY30526-021	RUBBER BUSH,X2
	201G	PTY30526-020	O RING
	202	YS40166B	CCD BASE ASSY
	203	SPSN2090Z	SCREW,X2
	204	LY30296-001A	SPACER RUBBER
	205	LY40549-001A	OP LPF
	206	LY20086-001A	CCD SPACER

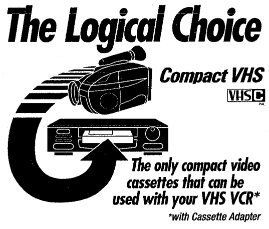
JVC

SERVICE MANUAL

COMPACT VHS CAMCORDER

GR-AX280EG/AX380EG/AX480EG




The Logical Choice
Compact VHS
VHSC
The only compact video cassettes that can be used with your VHS VCR*
*with Cassette Adapter

Compact VHS
VHSC
PAL

SPECIFICATIONS

GENERAL

Format	: VHS PAL standard
Power source	: DC 6V ⎓
Power consumption	
•GR-AX480 light on	: 7.9 W
•GR-AX480 light off / GR-AX280	: 5.0 W
•GR-AX380	: 5.1 W
Signal system	: PAL-type
Video recording system	
Luminance	: FM recording
Colour	: Converted sub-carrier direct recording Conforms to VHS standard
Cassette	: VHSC cassette
Tape speed	: 23.39 mm/sec
Recording time (max.)	: 60 minutes (with EC-60 cassette)
Operating temperature	: 0°C to +40°C
Operating humidity	: 35% to 80%
Storage temperature	: –20°C to +50°C
Weight	
•GR-AX480	: Approx. 800 g
•GR-AX380	: Approx. 770 g
•GR-AX280	: Approx. 790 g
Dimensions (Including viewfinder)	
•GR-AX480/AX280	: 113 (W) x 117 (H) x 242 (D) mm
•GR-AX380	: 113 (W) x 117 (H) x 222 (D) mm

CAMERA

Pick up	: 1/4″ format CCD
Lens	: F1.6, f = 3.8 to 83.6 mm, 22:1 power zoom lens with auto iris and macro control, filter diameter 46 mm
Viewfinder	: Electronic viewfinder with • 0.5″ B/W CRT (GR-AX480/AX280) • 0.55″ colour LCD (GR-AX380)
White balance adjustment	: Auto/Manual adjustment

VIDEO

Output	: 1 Vp-p, 75 ohms, unbalanced (via VIDEO OUT connector)

AUDIO

Output	: –8 dBs, 1 k-ohm (via AUDIO OUT connector)

AC POWER ADAPTER/BATTERY CHARGER (AA-V15EG)

Power requirement	: AC 110 V to 240 V∿, 50/60 Hz
Power consumption	: 23 W
Output	
Charge	: DC 8.5 V ⎓, 1.3 A
VTR	: DC 6.3 V ⎓, 1.8 A
Charging system	: Constant current, peak detection, timer controlled
Dimensions	: 140 (W) x 42 (H) x 68 (D) mm
Weight	: Approx. 300 g

CASSETTE ADAPTER (C-P7U)

Dimensions	: 188 (W) x 25 (H) x 104 (D) mm
Weight	: Approx. 240 g
Accessory	: "R6 (AA)"-size battery x 1

Provided Accessories .... ☞ pg. 3

(Refer to the INSTRUCTIONS)

Optional Accessories

- **Battery Packs BN-V12U, BN-V22U, BN-V25U**
- **Car Battery Charger BH-V3E**
- **RF Unit RF-V5E**
- **Compact VHS-C Cassettes EC-60/45/30**
- **Active Carrying Bag CB-V7U**
- **Remote Control Unit RM-V700U**

Some accessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

E. & O. E. Design and specifications subject to change without notice.

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No. 86379
February 1998

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The following table lists the differing points between Models (GR-AX280EG, GR-AX380EG and GR-AX480EG in this series.

	GR-AX280EG	GR-AX380EG	GR-AX480EG
VIEW FINDER	BLACK/WHITE	COLOR	BLACK/WHITE
TALLY LAMP	–	–	○
DC LIGHT	–	–	○
IR SENSOR	–	–	○
REMOCON	–	–	○
CABLE ADAPTER	–	–	○

NOTE: – NOT USED ○ USED

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: **Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.**

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

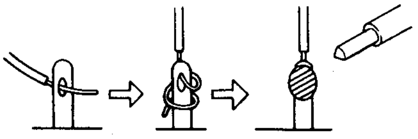


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

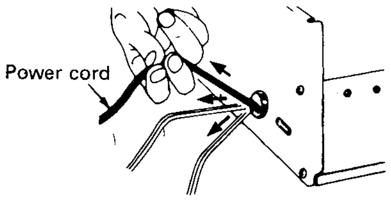


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

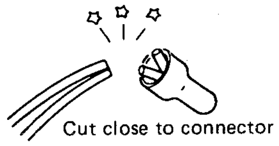


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

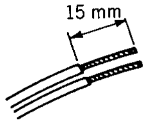


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

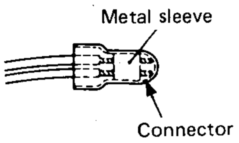


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

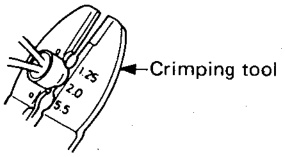


Fig. 6

(5) Check the four points noted in Fig. 7.

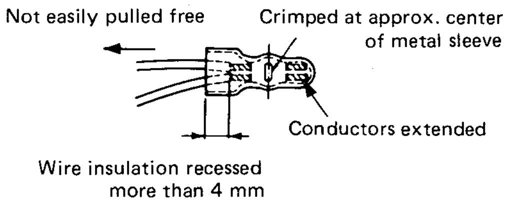

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

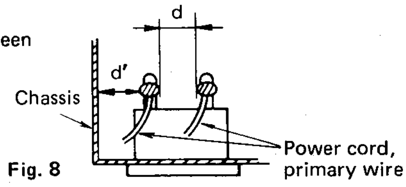


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

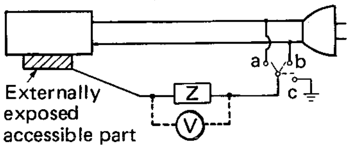


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

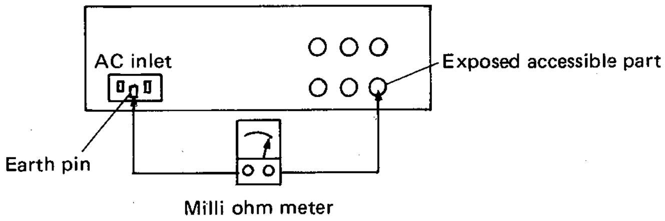


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	—	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

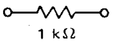
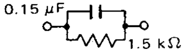
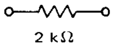
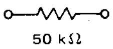
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan		i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada		i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia		i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
			i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Dear Customer,
Thank you for purchasing the JVC Compact VHS camcorder. Before use, please read the safety information and precautions contained in the following pages to ensure safe use of your new camcorder.

Using This Instruction Manual
- All major sections and subsections are listed in the Table Of Contents (☞ pg. 3).
- Notes appear after most subsections. Be sure to read these as well.
- Basic and advanced features/operation are separated for easier reference.

It is recommended that you . . .
.... refer to the Index (☞ pg. 48 – 50) and familiarize yourself with button locations, etc. before use.
.... read thoroughly the Safety Precautions that follow and cautions (☞ pg. 51, 52). They contain extremely important information regarding the safe use of your new camcorder.

SAFETY PRECAUTIONS

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

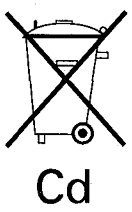
CAUTIONS:
- To prevent shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified personnel.
- When you are not using the AC Power Adapter/Battery charger for a long period of time, it is recommended that you disconnect the power cord from AC outlet.

VHS-C PAL HQ

- Camcorder is designed exclusively for the VHS-C video cassette. Only cassettes marked VHS-C can be used with this unit.
- HQ VHS is compatible with existing VHS equipment.

Warning on lithium battery
The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate.
Replace the battery with Maxell, Panasonic (Matsushita Electric), Sanyo or Sony CR2025; use of another battery may present a risk of fire or explosion.
- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

Crossed Out Dust Bin Mark



- The Crossed Out Dust Bin Mark on the battery pack indicates that the product complies with Directives 91/157/EEC and 93/86/EEC.
- Nickel-Cadmium (Ni-Cd) battery pack must be recycled or disposed of properly.

This camcorder is designed to be used with PAL-type colour television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. Use the BN-V12U/V22U/V25U battery packs and, to recharge them, the provided multi-voltage AC Power Adapter/Charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

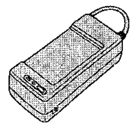
NOTES:
- *The rating plate (serial number plate) and safety caution are on the bottom and/or the back of the main unit.*
- *The rating plate (serial number plate) of the AC Power Adapter/Charger is on its bottom.*

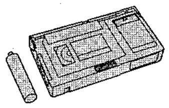
This unit is produced to comply with Standard IEC Publ. 65.

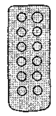
MAJOR FEATURES

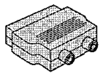
- **Program Manager II** (☞ pg. 18 – 31)
- **Programme AE with Special Effects** (☞ pg. 18, 19)
  - Auto Mode Lock •Auto Mode Release
  - Electronic Fog Filter •ND Effect
  - Sepia •Twilight •Sports
  - 1/1000 sec. High Speed Shutter
  - 1/2000 sec. High Speed Shutter
- **5Sec.-Rec (5 sec. Recording)** (☞ pg. 15)
- **22x Optical Hyper Zoom** (☞ pg. 14)
- **Intergrated Auto Light** (GR-AX480 only) (☞ pg. 16)

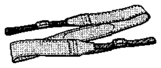
PROVIDED ACCESSORIES

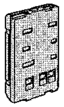

- AC Power Adapter/ Charger AA-V15EG

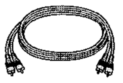

- Cassette Adapter C-P7U


- Remote Control Unit RM-V705U (GR-AX480 only)

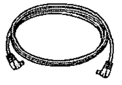

- Cable Adapter (GR-AX480 only)


- Shoulder Strap


- Battery Pack BN-V12U


- AUDIO/VIDEO (A/V) Cable

- Lithium Battery CR2025
  - x 2 for GR-AX480 (clock operation and remote control unit)
  - x 1 for GR-AX380/AX280 (clock operation)


- DC Cord

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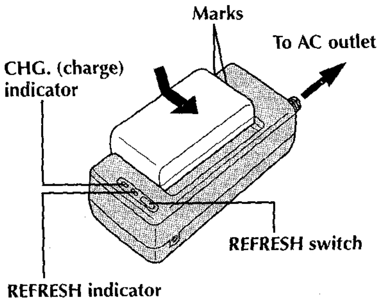
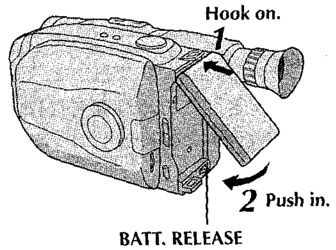


REFRESH

The AC power adapter features a REFRESH function that allows you to fully discharge the battery pack before recharging.
Perform the REFRESH function after no less than 5 chargings.

To discharge the battery . . .

..... attach the battery pack to the adapter as shown in the above illustration. Then push REFRESH. The REFRESH indicator lights when discharging starts, and goes out when discharging is complete.



ATTENTION:

Before detaching the power source, make sure that the camcorder's power is turned off. Failure to do so can result in a camcorder malfunction.

Power

This camcorder's 3-way power supply system lets you choose the most appropriate source of power.

NOTES:

- *No function is available without power supply.*
- *Use only specified power supply.*
- *Do not use provided power supply units with other equipment.*

CHARGING THE BATTERY PACK

1 SUPPLY POWER

Connect the charger's AC power cord to a wall outlet.

2 ATTACH BATTERY PACK

Align the marks and slide the battery pack in the direction of the arrow until it locks in place.

- The CHG. indicator begins blinking to indicate charging has started.

3 DETACH BATTERY PACK

When the CHG. indicator stops blinking but stays lit, charging is finished. Slide the battery pack opposite the direction of the arrow.

BATT. PACK	CHARGE	DISCHARGE
BN-V12U	approx. 1 hr. 10 min.	approx. 3 hrs. 30 min.
BN-V22U	approx. 2 hrs. 10 min.	approx. 7 hrs.
BN-V25U	approx. 2 hrs. 40 min.	approx. 10 hrs.

USING THE BATTERY PACK

1 ATTACH BATTERY PACK

Hook its top end to the camcorder and push the battery pack in until it locks in place.

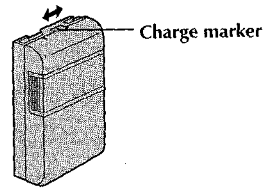
2 DETACH BATTERY PACK

Slide **BATT. RELEASE** and pull out the battery pack.

Approximate recording time (unit: min.)

BATT. PACK	GR-AX480/AX280	GR-AX380
BN-V12U	75 (40)	75
BN-V22U	155 (95)	150
BN-V25U	200 (120)	200

( ) : when the video light is on. (GR-AX480 only)

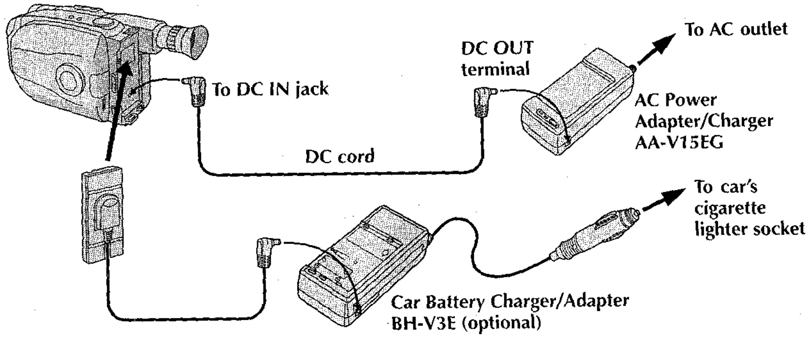


CHARGE MARKER

A charge marker is provided on the battery pack to help you remember whether it has been charged or not. Two colours are provided (red and black)—you choose which one means charged and which means discharged.

NOTES:

- *The recording time per charge is affected by such factors as the time spent in Record-Standby mode and the frequency of zooming. It is safer to have spare battery packs.*
- *Charging times noted on page 4 are for fully discharged battery pack, and discharging times are for fully charged battery pack.*
- *Charging and discharging times vary according to the ambient temperature and the status of the battery pack.*
- *Remember to set the charge marker after charging a battery pack or after detaching a discharged one from your camcorder.*
- *While the AC Power Adapter/Charger's power cord is disconnected from the AC outlet, it is possible to discharge the battery by pressing the REFRESH switch. During that time, the AC Power Adapter/Charger does not charge the battery. When disharging is complete, detach the battery from the AC Power Adapter/Charger to store it.*
- *Perform the REFRESH function after no less than 5 chargings.*
- *High temperatures can damage the battery pack, so use only where good ventilation is available. Don't allow it to discharge in container, such as a bag.*
- *If you stop recharging or discharging part way through, make sure to remove the battery pack before unplugging the adapter's AC cord.*
- *Remove the battery pack from the adapter immediately after discharging.*
- *To avoid interference with reception, do not use the AC Power Adapter/Charger near a radio.*
- *Make sure you unplug the DC cord before charging or discharging the battery pack.*
- *The CHG. indicator may not light properly with a brand new battery pack, or with one that's been stored for an extended period. In this case, remove and reattach the battery pack and recharge it. The CHG. indicator should blink during recharging. If not, contact your nearest JVC dealer.*


To AC outlet
DC OUT terminal
To DC IN jack
AC Power Adapter/Charger AA-V15EG
DC cord
To car's cigarette lighter socket
Car Battery Charger/Adapter BH-V3E (optional)

USING A CAR BATTERY

Use the optional Car Battery Charger/Adapter (connect as shown in the illustration above).

NOTES:

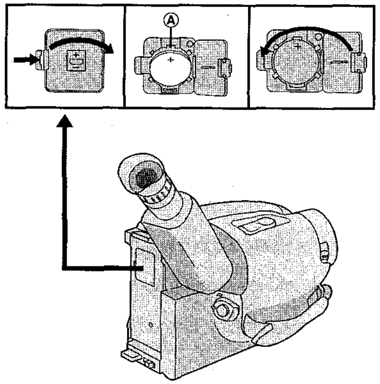
- *When using the car battery, leave the engine idling.*
- *The optional Car Battery Charger (BH-V3E) can also be used to charge the battery pack.*
- *When using the optional Car Battery Charger, refer to the respective instruction booklet.*

USING AC POWER

Use the AC Power Adapter (connect as shown in the illustration above).

NOTE:

The supplied AC Power Adapter/Charger features automatic voltage selection in the AC range from 110 V to 240 V.



Clock (Lithium) Battery Insertion/Removal

This battery is necessary for clock operation and to perform date/time settings.

1 SWITCH OFF POWER

Switch off the unit's power and remove the power supply unit.

2 OPEN COVER

Open the clock battery compartment cover while pressing the release tab.

3 REMOVE BATTERY (when replacing)

Insert a pointed, non-metallic object between the battery and the compartment (Ⓐ) and pull the battery out.

4 INSERT BATTERY

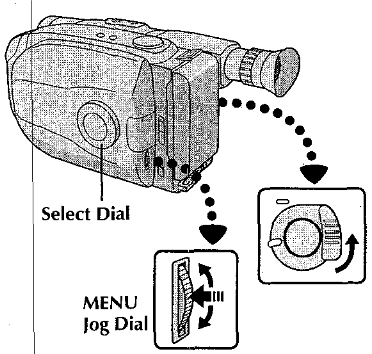
Ensure that the plus (+) side is up and insert a CR2025 lithium battery and push it in.

5 CLOSE COVER

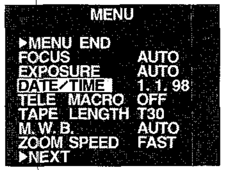
Close the compartment cover until it clicks in place.

NOTE:

See "SAFETY PRECAUTIONS" (☞ pg. 2) for information on safe handling of lithium batteries.

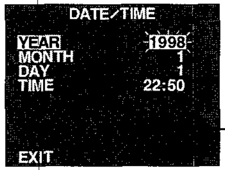


Viewfinder



Menu Screen

```
MENU
▶MENU END
FOCUS          AUTO
EXPOSURE       AUTO
DATE/TIME      1. 1. 98
TELE  MACRO    OFF
TAPE  LENGTH   T30
M. W. B.       AUTO
ZOOM SPEED     FAST
▶NEXT
```

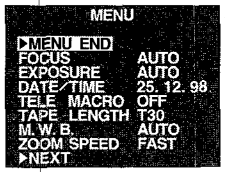


DATE/TIME Setting Menu

24-hour indication

```
DATE/TIME
YEAR            1998
MONTH              1
DAY                1
TIME           22:50

EXIT
```



```
MENU
▶MENU END
FOCUS          AUTO
EXPOSURE       AUTO
DATE/TIME      25. 12. 98
TELE  MACRO    OFF
TAPE  LENGTH   T30
M. W. B.       AUTO
ZOOM SPEED     FAST
▶NEXT
```

Date/Time Setting

1 ACCESS MENU SCREEN

First set the Power Switch to "CAMERA". Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial.

2 SELECT FUNCTION

Rotate the MENU Jog Dial to move the highlight bar to "DATE/TIME", then press it. The DATE/TIME Setting Menu appears.

- If you decide you want to return the date and time to the previous settings, rotate the MENU Jog Dial to move highlight bar to "EXIT" and press it, then go to step **6**.
- If you want to set only the time without changing the date, go to step **4**.

3 SET DATE

Rotate the MENU Jog Dial to move the highlight bar to the item you want to set and then press it. When the setting begins blinking, rotate the MENU Jog Dial until the correct setting appears and then press it. The setting stops blinking.

- Repeat this procedure until you're satisfied with the Date settings ("YEAR", "MONTH" and "DAY").

4 SET TIME

Rotate the MENU Jog Dial to move the highlight bar to "TIME" and then press it. When the hour setting begins blinking, rotate the MENU Jog Dial until the correct setting appears and then press it. When the hour setting stops blinking and the minute setting begins blinking, rotate the MENU Jog Dial until the correct setting appears and then press it. The minute setting stops blinking.

5 START CLOCK OPERATION

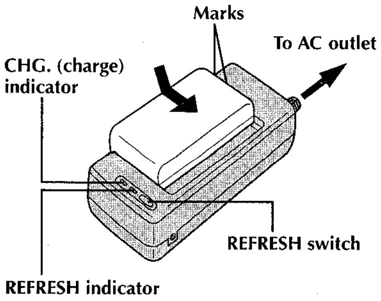
When none of these settings (YEAR, MONTH, DAY, TIME) blinks, rotate the MENU Jog Dial to move the highlight bar to "EXIT", and press it. The Menu Screen appears and "MENU END" is highlighted.

6 CLOSE MENU

Press the MENU Jog Dial.

NOTE:

To display the date and time in the viewfinder and on a connected TV, see "Date/Time/Character Insert" (☞ pg. 17).

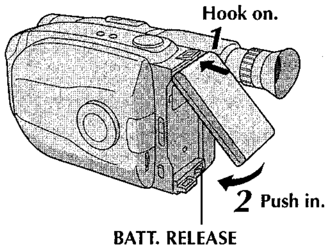


REFRESH

The AC power adapter features a REFRESH function that allows you to fully discharge the battery pack before recharging.
Perform the REFRESH function after no less than 5 chargings.

To discharge the battery . . .

..... attach the battery pack to the adapter as shown in the above illustration. Then push REFRESH. The REFRESH indicator lights when discharging starts, and goes out when discharging is complete.



ATTENTION:

Before detaching the power source, make sure that the camcorder's power is turned off. Failure to do so can result in a camcorder malfunction.

Power

This camcorder's 3-way power supply system lets you choose the most appropriate source of power.

NOTES:

- *No function is available without power supply.*
- *Use only specified power supply.*
- *Do not use provided power supply units with other equipment.*

CHARGING THE BATTERY PACK

1 SUPPLY POWER

Connect the charger's AC power cord to a wall outlet.

2 ATTACH BATTERY PACK

Align the marks and slide the battery pack in the direction of the arrow until it locks in place.

- The CHG. indicator begins blinking to indicate charging has started.

3 DETACH BATTERY PACK

When the CHG. indicator stops blinking but stays lit, charging is finished. Slide the battery pack opposite the direction of the arrow.

BATT. PACK	CHARGE	DISCHARGE
BN-V12U	approx. 1 hr. 10 min.	approx. 3 hrs. 30 min.
BN-V22U	approx. 2 hrs. 10 min.	approx. 7 hrs.
BN-V25U	approx. 2 hrs. 40 min.	approx. 10 hrs.

USING THE BATTERY PACK

1 ATTACH BATTERY PACK

Hook its top end to the camcorder and push the battery pack in until it locks in place.

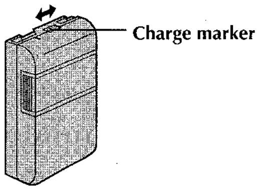
2 DETACH BATTERY PACK

Slide **BATT. RELEASE** and pull out the battery pack.

Approximate recording time (unit: min.)

BATT. PACK	GR-AX480/AX280	GR-AX380
BN-V12U	75 (40)	75
BN-V22U	155 (95)	150
BN-V25U	200 (120)	200

( ) : when the video light is on. (GR-AX480 only)

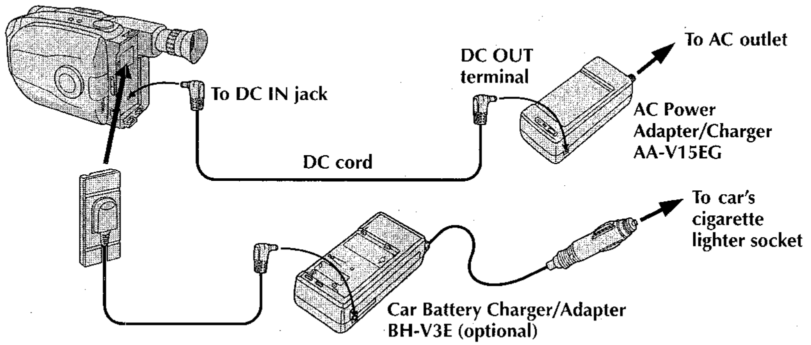


CHARGE MARKER

A charge marker is provided on the battery pack to help you remember whether it has been charged or not. Two colours are provided (red and black)—you choose which one means charged and which means discharged.

NOTES:

- *The recording time per charge is affected by such factors as the time spent in Record-Standby mode and the frequency of zooming. It is safer to have spare battery packs.*
- *Charging times noted on page 4 are for fully discharged battery pack, and discharging times are for fully charged battery pack.*
- *Charging and discharging times vary according to the ambient temperature and the status of the battery pack.*
- *Remember to set the charge marker after charging a battery pack or after detaching a discharged one from your camcorder.*
- *While the AC Power Adapter/Charger's power cord is disconnected from the AC outlet, it is possible to discharge the battery by pressing the REFRESH switch. During that time, the AC Power Adapter/Charger does not charge the battery. When disharging is complete, detach the battery from the AC Power Adapter/Charger to store it.*
- *Perform the REFRESH function after no less than 5 chargings.*
- *High temperatures can damage the battery pack, so use only where good ventilation is available. Don't allow it to discharge in container, such as a bag.*
- *If you stop recharging or discharging part way through, make sure to remove the battery pack before unplugging the adapter's AC cord.*
- *Remove the battery pack from the adapter immediately after discharging.*
- *To avoid interference with reception, do not use the AC Power Adapter/Charger near a radio.*
- *Make sure you unplug the DC cord before charging or discharging the battery pack.*
- *The CHG. indicator may not light properly with a brand new battery pack, or with one that's been stored for an extended period. In this case, remove and reattach the battery pack and recharge it. The CHG. indicator should blink during recharging. If not, contact your nearest JVC dealer.*


To AC outlet
DC OUT terminal
To DC IN jack
AC Power Adapter/Charger AA-V15EG
DC cord
To car's cigarette lighter socket
Car Battery Charger/Adapter BH-V3E (optional)

USING A CAR BATTERY

Use the optional Car Battery Charger/Adapter (connect as shown in the illustration above).

NOTES:

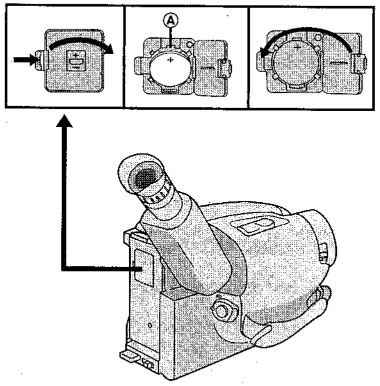
- *When using the car battery, leave the engine idling.*
- *The optional Car Battery Charger (BH-V3E) can also be used to charge the battery pack.*
- *When using the optional Car Battery Charger, refer to the respective instruction booklet.*

USING AC POWER

Use the AC Power Adapter (connect as shown in the illustration above).

NOTE:

The supplied AC Power Adapter/Charger features automatic voltage selection in the AC range from 110 V to 240 V.



Clock (Lithium) Battery Insertion/Removal

This battery is necessary for clock operation and to perform date/time settings.

1 SWITCH OFF POWER

Switch off the unit's power and remove the power supply unit.

2 OPEN COVER

Open the clock battery compartment cover while pressing the release tab.

3 REMOVE BATTERY (when replacing)

Insert a pointed, non-metallic object between the battery and the compartment (Ⓐ) and pull the battery out.

4 INSERT BATTERY

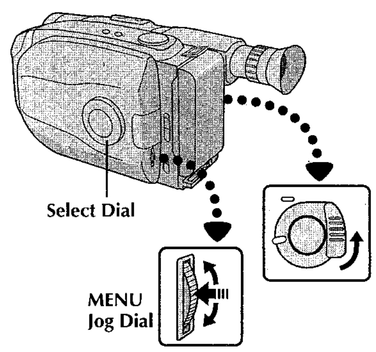
Ensure that the plus (+) side is up and insert a CR2025 lithium battery and push it in.

5 CLOSE COVER

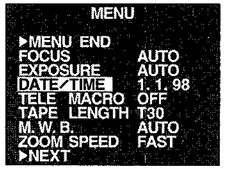
Close the compartment cover until it clicks in place.

NOTE:

See "SAFETY PRECAUTIONS" (☞ pg. 2) for information on safe handling of lithium batteries.

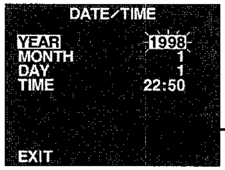


Viewfinder



MENU
▶MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME 1. 1. 98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▶NEXT

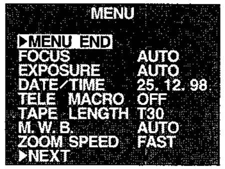
Menu Screen



DATE/TIME
YEAR 1998
MONTH 1
DAY 1
TIME 22:50
EXIT

DATE/TIME Setting Menu

24-hour indication



MENU
▶MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME 25. 12. 98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▶NEXT

Date/Time Setting

1 ACCESS MENU SCREEN

First set the Power Switch to "CAMERA". Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial.

2 SELECT FUNCTION

Rotate the MENU Jog Dial to move the highlight bar to "DATE/TIME", then press it. The DATE/TIME Setting Menu appears.

- If you decide you want to return the date and time to the previous settings, rotate the MENU Jog Dial to move highlight bar to "EXIT" and press it, then go to step **6**.
- If you want to set only the time without changing the date, go to step **4**.

3 SET DATE

Rotate the MENU Jog Dial to move the highlight bar to the item you want to set and then press it. When the setting begins blinking, rotate the MENU Jog Dial until the correct setting appears and then press it. The setting stops blinking.

- Repeat this procedure until you're satisfied with the Date settings ("YEAR", "MONTH" and "DAY").

4 SET TIME

Rotate the MENU Jog Dial to move the highlight bar to "TIME" and then press it. When the hour setting begins blinking, rotate the MENU Jog Dial until the correct setting appears and then press it. When the hour setting stops blinking and the minute setting begins blinking, rotate the MENU Jog Dial until the correct setting appears and then press it. The minute setting stops blinking.

5 START CLOCK OPERATION

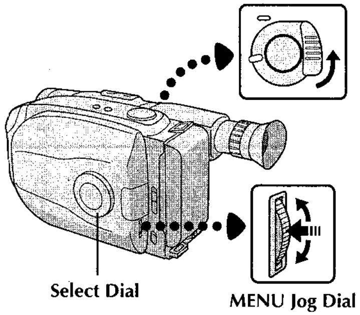
When none of these settings (YEAR, MONTH, DAY, TIME) blinks, rotate the MENU Jog Dial to move the highlight bar to "EXIT", and press it. The Menu Screen appears and "MENU END" is highlighted.

6 CLOSE MENU

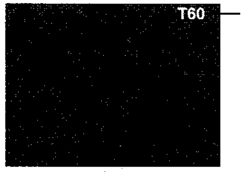
Press the MENU Jog Dial.

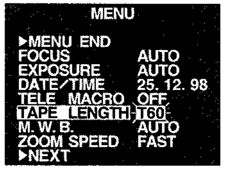
NOTE:

To display the date and time in the viewfinder and on a connected TV, see "Date/Time/Character Insert" (☞ pg. 17).



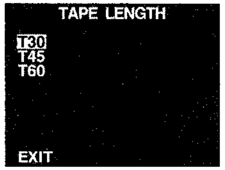
Viewfinder





```
MENU
▶MENU END
FOCUS          AUTO
EXPOSURE       AUTO
DATE/TIME      25. 12. 98
TELE  MACRO    OFF
TAPE  LENGTH   T60
M. W. B.       AUTO
ZOOM SPEED     FAST
▶NEXT
```

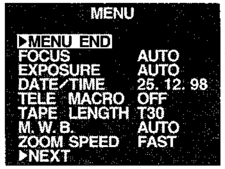
Menu Screen



```
TAPE LENGTH
T30
T45
T60

EXIT
```

TAPE LENGTH Setting Menu



```
MENU
▶MENU END
FOCUS          AUTO
EXPOSURE       AUTO
DATE/TIME      25. 12. 98
TELE  MACRO    OFF
TAPE  LENGTH   T30
M. W. B.       AUTO
ZOOM SPEED     FAST
▶NEXT
```

Tape Length Setting

Set the tape length according to the length of the tape used.

1 ACCESS MENU SCREEN

First set the Power Switch to "CAMERA". Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial.

2 SELECT FUNCTION

Rotate the MENU Jog Dial to move the highlight bar to "TAPE LENGTH", then press it. The TAPE LENGTH Setting Menu appears.

3 SET TAPE LENGTH

Rotate the MENU Jog Dial to move the highlight bar to the correct setting. T30=30 minutes of recording time, T45=45 minutes, and T60=60 minutes.

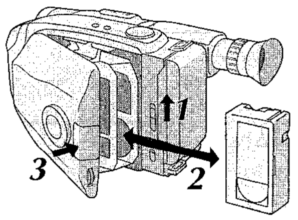
- If you decide you want to return the tape length to the previous setting, rotate the MENU Jog Dial to move the highlight bar to "EXIT".

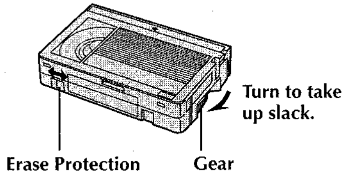
4 CLOSE MENU

Press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is on "MENU END". Then press the MENU Jog Dial again to close the Menu Screen.

NOTES:

- *The tape remaining time (☞ pg. 13) displayed in the viewfinder is correct only if the correct tape length has been selected.*
- *Once you have set the tape length, it remains unchanged even if the Select Dial is returned to AUTO LOCK.*





Loading/Unloading A Cassette

1 OPEN CASSETTE HOLDER

Slide **EJECT** until the holder opens. Do not use force to open.

2 INSERT/REMOVE CASSETTE

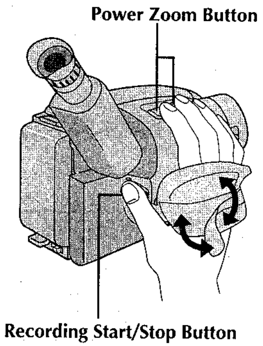
Make sure the label is facing outward.

3 CLOSE CASSETTE HOLDER

Press **PUSH** and make sure the holder is closed and locked.

NOTES:

- *A cassette holder can't be opened unless a power supply is attached.*
- *Make sure that the tape is not slack when loading the cassette. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up the slack.*
- *Make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.*
- *The cassette holder can't be opened while the camcorder is in the record mode.*



Grip Adjustment

1 EXPAND LOOP

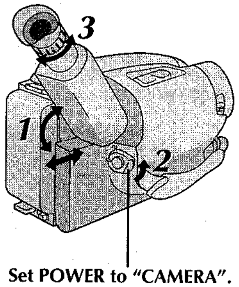
Separate the Velcro strip.

2 INSERT HAND

Pass your right hand through the loop and grasp the grip.

3 ADJUST STRAP LENGTH

Adjust so your thumb and fingers can easily operate the Recording Start/Stop Button and Power Zoom Button. Refasten the Velcro strip.



Set POWER to "CAMERA".

Viewfinder Adjustment

1 POSITION VIEWFINDER

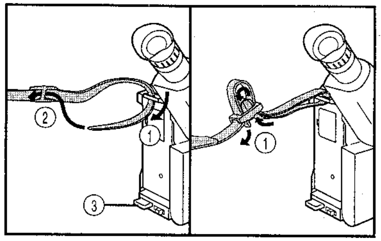
Adjust the viewfinder manually for best viewability (see illustration to the left).

2 SELECT MODE

Set the Power Switch to CAMERA.

3 ADJUST DIOPTRE

Turn the dioptre Adjustment Control until the indications in the viewfinder are clearly focused.



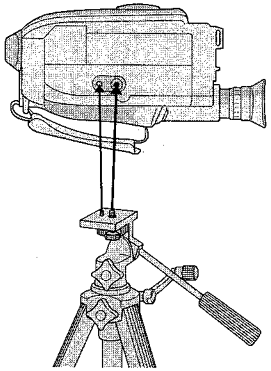
Shoulder Strap Attachment

1 ATTACH STRAP

Following the illustration to the left, thread the strap through the top of the eyelet ①, then fold it back and thread it through the buckle ②. Repeat the procedure to attach the other end of the strap to the other eyelet ③, making sure the strap isn't twisted.

2 ADJUST LENGTH

Adjust as shown in the illustration to the left ①.



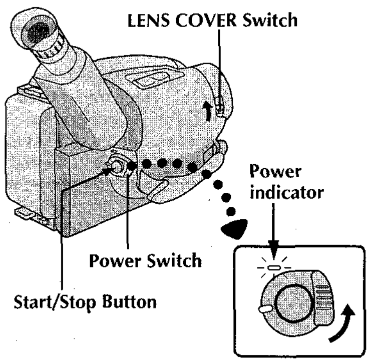
Tripod Mounting

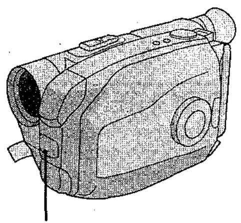
1 ALIGN AND TIGHTEN

Align the screw and camera direction stud on the tripod with the camera's mounting socket and stud hole. Then tighten the screw.

CAUTION:

When using a tripod, be sure to open and extend its legs fully to stabilize the camcorder. To prevent damage to the unit caused by falling over, do not use a small-sized tripod.




Tally lamp (GR-AX480 only)
(lights while recording is in progress)

NOTE:

You should already have performed the procedures listed below. If not, do so before continuing.
- *Power (☞ pg. 4)*
- *Tape Length Setting (☞ pg. 8)*
- *Grip Adjustment (☞ pg. 10)*

1 LOAD A CASSETTE

Slide **EJECT** to open the cassette holder, then insert the cassette with the label facing out. Press **PUSH** to ensure the holder is closed and locked.

2 ENTER RECORD-STANDBY MODE

Slide the **LENS COVER** Open/Close Switch to open the lens cover, then set the Power Switch to CAMERA.

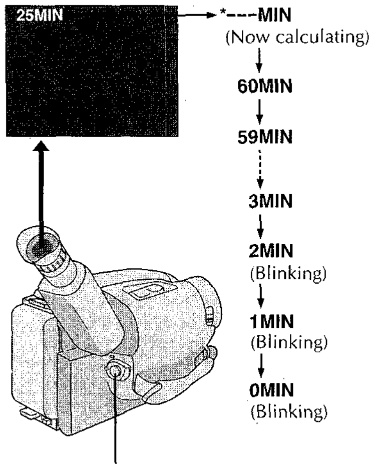
- The power indicator lights and the camcorder enters the Record-Standby mode.
- The scene you're aimed at appears on the viewfinder screen, with the word "PAUSE" superimposed upon it.

3 START SHOOTING

Press the Recording Start/Stop Button.

- "REC ▶▶▶" appears in the viewfinder while recording is in progress.

Tape remaining time indicator



Start/Stop Button

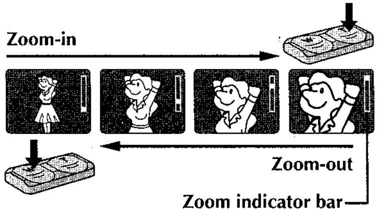
4 STOP RECORDING

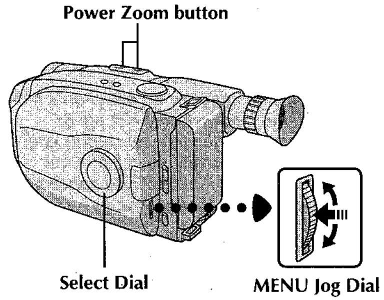
Press the Recording Start/Stop Button again to stop recording.

- The camcorder re-enters the Record-Standby mode.

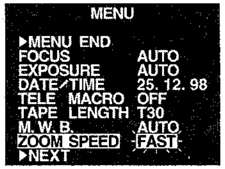
NOTES:

- *A cassette holder can't be opened unless a power supply is attached.*
- *There may be a delay after you slide EJECT until the holder opens. Do not use force.*
- *The displayed remaining time is approximate.*
- *The time required to calculate the remaining tape length, and the accuracy of the calculation, may vary according to the type of tape used.*
- *The tape remaining time indicator is correct only if the correct tape length has been selected (☞ pg. 8).*
- *"TAPE END" appears when the tape reaches its end, and the power goes off automatically if left in this condition for 5 minutes. "TAPE END" also appears when a cassette whose tape is already at its end is loaded.*
- *If the Record-Standby mode continues for 5 minutes without performing Zoom or any other operations, the camcorder's power shuts off automatically. Set the Power Switch to "POWER OFF", and then back to "CAMERA" to turn the camcorder on again.*
- *If the Recording Start/Stop Button is pressed after the Record-Standby mode has continued for over 5 minutes, recording may not start immediately.*
- *If you're recording on a cassette from the middle (such as when a tape is removed and re-inserted during recording), use the Retake function (☞ pg. 15) to find the end of the last recording so you don't erase any of it.*
- *The LENS COVER warning blinks for about 5 seconds when the camcorder is turned on when the cover is closed.*

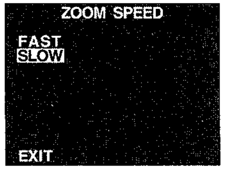




Viewfinder


MENU
▶MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME 25. 12. 98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▶NEXT

Menu Screen


ZOOM SPEED
FAST
SLOW
EXIT

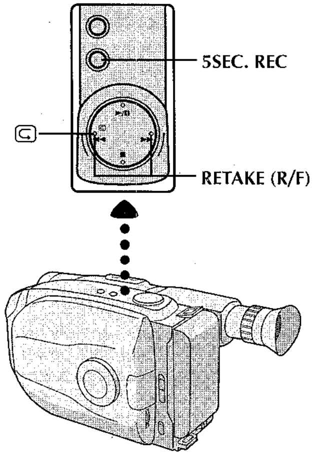
ZOOM SPEED Setting Menu

FEATURE:	**Zooming**
PURPOSE:	To produce the zoom in/out effect, or an instantaneous change in image magnification.
OPERATION:	***Zoom In*** Press the "T" of the Power Zoom Button. ***Zoom Out*** Press "W" of the Power Zoom Button. ■ Zooming speed is available. A total of 4 zoom speeds are available. 2 speeds can be selected depending on how hard the Power Zoom Button is pressed (press the button fully for regular-speed, press it lightly for slow-speed), while 2 speed levels (FAST/SLOW) can be selected in the ZOOM SPEED Menu depending on the overall speed you prefer. The combinations of zoom speeds are shown in the chart below. ***Changing the ZOOM SPEED in the Menu*** 1) Set the Select Dial to any position except AUTO LOCK and press the MENU Jog Dial. The Menu Screen appears. 2) Rotate the MENU Jog Dial to move the highlight bar to "ZOOM SPEED", then press it. The ZOOM SPEED Setting Menu appears. 3) Rotate the MENU Jog Dial to move the highlight bar to the desired speed and press it twice. The Menu Screen disappears and setting is completed.
NOTE:	*Focusing may become unstable during Zooming. In this case, set the zoom while in Record-Standby, lock the focus by using the manual focus (☞ pg. 27), then zoom in or out in Record mode.*

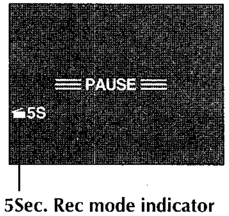
Zooming Speed (1 – 4 in order of speed)

"ZOOM SPEED" in the Menu Screen	Pressing the Power Zoom Button	
	fully	lightly
▨ FAST	1 (fastest)	3
SLOW	2	4 (slowest)

▨ : when the Select Dial is set to AUTO LOCK.



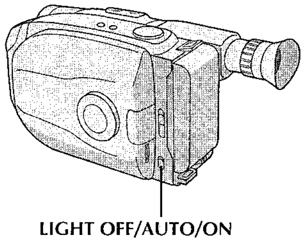
Viewfinder



FEATURE:	**Quick Review**
PURPOSE:	To check the end of the last recording.
OPERATION:	1) Press "⊡" and release quickly during the Record-Standby mode. ■ Tape is rewound for about 2 seconds and played back automatically, then pauses in Record-Standby mode for the next shot.
NOTE:	*Distortion may occur at start of playback. This is normal.*

FEATURE:	**Retake**
PURPOSE:	To re-record certain segments.
OPERATION:	1) Make sure the camcorder is in the Record-Standby mode. 2) Press either **RETAKE** button to reach the start point for new recording. Pressing "F" forwards the tape and pressing "R" reverses it. 3) Press Recording Start/Stop Button to start recording.
NOTE:	*Noise may appear during Retake. This is normal.*

FEATURE:	**5Sec. Rec (5-sec. Recording)**
PURPOSE:	To record a scene for 5 seconds, providing quick scene transitions like those seen in TV programmes.
OPERATION:	1) During Record-Standby, press **5SEC. REC**. "■ 5S" appears and 5Sec. Rec is reserved. 2) Press Recording Start/Stop Button. Recording starts, and after 5-second recording is finished, the camcorder reenters the Record-Standby mode automatically. ■ To cancel the 5Sec. Rec. function, press **5SEC. REC** again so that "■ 5S" disappears.
NOTE:	*The Fader (☞ pg. 20) cannot be activated by pressing **5SEC. REC**.*


LIGHT OFF/AUTO/ON

FEATURE: **Video Light (GR-AX480 only)**

PURPOSE: To brighten the scene when natural lighting is too dim.

OPERATION:

1) Set the **LIGHT OFF/AUTO/ON** Switch as required:

ON : Always keeps the light on as long as the camcorder is turned on.
AUTO : Automatically turns on the light when the camcorder senses insufficient lighting on the subject.
OFF : Turns off the light.

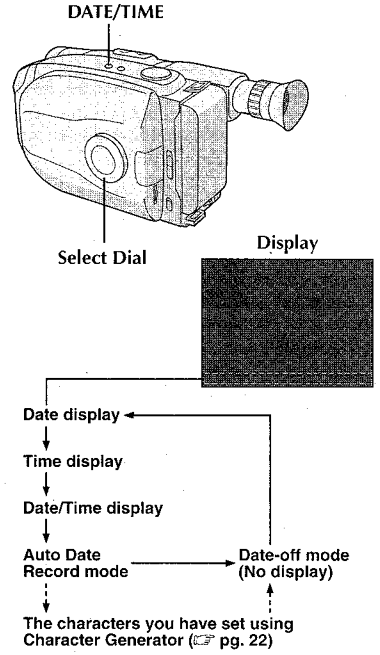
- The video light can only be used with the camcorder's power on.
- It is recommended to set the white balance (☞ pg. 29) to HALOGEN mode (☀) when you use the video light.
- When not using the video light, turn it off to save battery power.

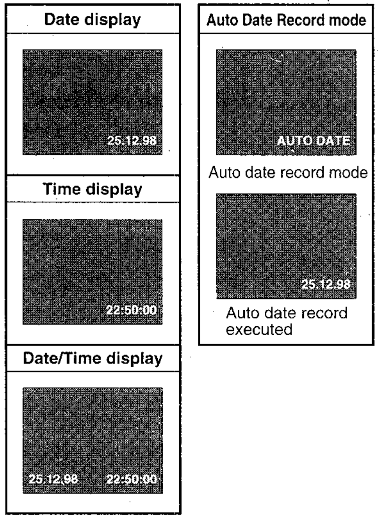
NOTES:

- *Even if the battery indicator (▭) does not blink if the battery pack's charge is low, the camcorder may turn off automatically when you turn on the video light, or when you start recording with the video light turned on.*
- *When the **LIGHT OFF/AUTO/ON** Switch is set to "AUTO":*
  - *Depending on the lighting conditions, the video light may keep turning on and off. In this case, manually switch the light on or off using the **LIGHT OFF/AUTO/ON** switch.*
  - *While the Sports or High-Speed Shutter mode (☞ pg. 19) is engaged, the light is likely to stay on.*
  - *While the Twilight mode (☞ pg. 19) is engaged, the light will not activate.*

DANGER

- The video light can become extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- Do not place the camcorder into the carrying case immediately after using the video light, since it remains extremely hot for some time.
- When operating, keep a distance of about 30 cm. between the video light and people or objects.
- Do not use near flammable or explosive materials.
- It is recommended that you consult your nearest JVC dealer for replacing the video light.


DATE/TIME
Select Dial
Display
Date display
Time display
Date/Time display
Auto Date Record mode
Date-off mode (No display)
The characters you have set using Character Generator (☞ pg. 22)


Date display
25.12.98
Time display
22:50:00
Date/Time display
25.12.98 22:50:00
Auto Date Record mode
AUTO DATE
Auto date record mode
25.12.98
Auto date record executed

FEATURE: **Date/Time/Character Insert**

PURPOSE: To display the date and time in the viewfinder or on a connected colour monitor, as well as to record them manually or automatically.

OPERATION:

1) Turn the Select Dial to any position except AUTO LOCK.
2) Choose a display mode by pressing **DATE/TIME** repeatedly while in Record-Standby to cycle through the modes as shown in the illustration to the left.
   - You should have already performed the Date/Time Setting procedure (☞ pg. 7). If you haven't, do so first.

NOTES:

DISPLAY

- *The selected display can be recorded.*
- *If you don't want to record the display, select the Date-off mode before shooting.*
- *If you want to delete the display during shooting, press **DATE/TIME**.*
- *To recall the display, engage the Record-Standby mode and press **DATE/TIME** repeatedly until the desired display appears.*

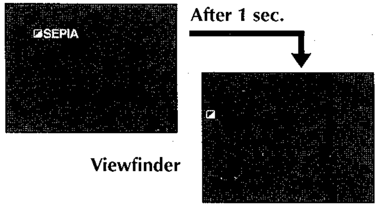
AUTO DATE RECORD

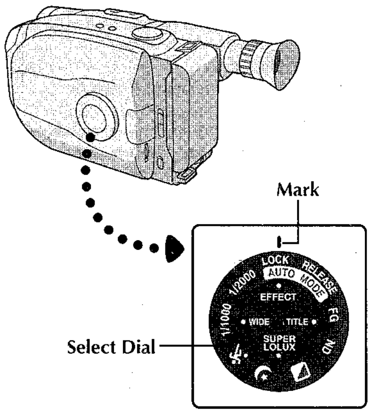
- *Your camcorder automatically records the date for about 5 seconds after recording is initiated in the following situations:*
  - *After changing the date.*
  - *After loading a cassette.*
  - *After Auto Date Record mode is selected by pressing **DATE/TIME**.*

In this mode, the date is replaced after 5 seconds with "AUTO DATE" but this is not recorded.

- *Setting the Select Dial to AUTO LOCK always engages the Auto Date Record mode, and disables all other modes.*

1 second later, the mode is activated.





Programme AE With Special Effects

All you have to do to access any of the variety of shooting effects is to turn the Select Dial.

1 SELECT MODE

Turn the Select Dial until the symbol of the function you want is aligned with the mark.

- The selected mode's name and its indication are displayed for approx. 1 second. Then the name disappears, and only the indication remains. The mode is activated.
- When Auto Mode Lock or Auto Mode Release mode is selected, only the mode's name is displayed. Then the name disappears and the mode is activated.

NOTES:

- *Only one effect can be engaged at a time.*
- *The screen becomes slightly reddish when the Fader (☞ pg. 20) is used in the Sepia mode.*
- *The screen becomes slightly dark in the High Speed Shutter mode. Use in well-lit situations.*
- *In the High Speed Shutter or Sports modes, picture colour may be adversely affected if subject is lit by alternating discharge-type light sources such as flourescent or mercury-vapour lights.*

Dial symbol	Viewfinder indication	Mode
LOCK	AUTO LOCK	Auto Mode Lock

Auto Mode Lock

Locks the camcorder in Full Auto mode, preventing incorrect operation due to accidental button pressing during shooting.

- In this mode the following controls are disabled; DATE/TIME display select, and the Menu Jog Dial.

RELEASE	AUTO RELEASE	Auto Mode Release

Auto Mode Release

Re-enables the controls that were disabled by Auto Mode Lock.

FG	FG : FOG	Electronic Fog Filter

Electronic Fog Filter

Makes the picture look misty white, as when an external fog filter is attached to the lens. Softens the image and gives it a "fantasy" look.

ND	ND : ND EFFECT	ND Effect

ND Effect

A black mist darkens the picture, as when an ND filter is used. Helps to counter the effects of glare on the subject.

	SEPIA	Sepia

Sepia

The scene being shot is recorded in sepia-tinted (reddish-brown) monochrome, giving the effect of an older movie. Use together with Wide (☞ pg. 20) for the authentic look of a classic Hollywood movie.

Dial symbol	Viewfinder indication	Mode
	TWILIGHT	Twilight

Twilight

Dusk, twilight scenery, fireworks, etc., look more natural and dramatic. The following happens when Twilight mode is selected:

- Auto gain control is turned off.
- White Balance is set to "☀" (FINE day mode), but can also be manually changed to another mode (☞ pg. 29).
- Auto Focus becomes available only in the range of 10 m to infinity. To focus when the subject-to-camera distance is less than 10 m, use manual focusing (☞ pg. 27).

	SPORTS	Sports

Sports

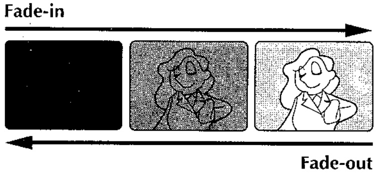
High shutter speed clearly captures fast-moving action.

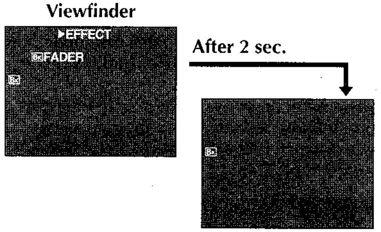
1/1000	1 S 1/1000	1/1000 sec. High Speed Shutter
1/2000	2 S 1/2000	1/2000 sec. High Speed Shutter

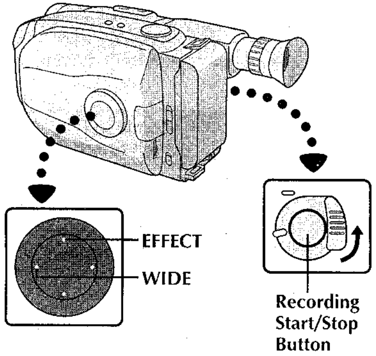
High-Speed Shutter (1/1000s., 1/2000s.)

Captures faster action than Sports mode.

Fader


Fade-in
Fade-out


Viewfinder
▸EFFECT
BkFADER
Bk
After 2 sec.
Bk


EFFECT
WIDE
Recording Start/Stop Button

This feature allows smooth fade-in and fade-out to black blank screen. Fade-in works at recording start, and fade-out works at recording end or when you enter Record-Standby mode.

1 ENGAGE FADE-STANDBY MODE

Press **EFFECT** to engage the Fade-Standby mode.

- "Bk FADER" is displayed for approx. 2 seconds. Then "FADER" disappears, and only "Bk" remains.

2 START OR END RECORDING

Press Recording Start/Stop Button to activate fade-in or fade-out.

3 TO CANCEL FADE-STANDBY MODE

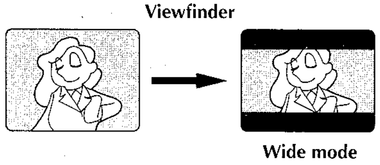
While "Bk" is displayed, press **EFFECT**.

- "OFF" is displayed for approx. 2 seconds and the fade-standby mode is canceled.

NOTES:

- *Pressing and holding the Recording Start/Stop Button allows you to record a black blank screen.*
- *The screen becomes slightly reddish when the Fader is used with Sepia (☞ pg. 19).*
- *With the Electronic fog filter mode (☞ pg. 19) engaged, the image fades in/out to a white screen.*

Wide


Viewfinder
Wide mode

This feature allows you to record black bars at the top and bottom of the screen to produce a cinema-like "wide-screen" effect.

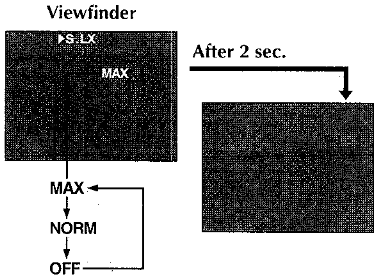
1 ENGAGE WIDE MODE

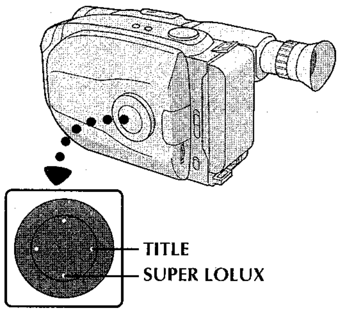
Press **WIDE**.

- To restore normal screen, press **WIDE** again.

NOTE **(for Fader, Wide, Super LoLux, and Instant Titles) :**
When the Select Dial is turned to AUTO LOCK, the above functions will be set to the Factory settings (Fade-standby : "OFF", Wide mode : off, Super LoLux : "MAX", Instant Title : off). Then when the Select Dial is returned to any position except AUTO LOCK, the above functions return to the settings you selected before turning it to AUTO LOCK. However, if the function is switched during AUTO LOCK, the selected mode will be set and will remain unchanged even when the Select Dial is turned to any position except AUTO LOCK.

Super LoLux(Gain Up)


Viewfinder
▸S.LX
MAX
After 2 sec.
MAX
NORM
OFF


TITLE
SUPER LOLUX

Bright, natural recordings can be taken even in areas with low or poor lighting.

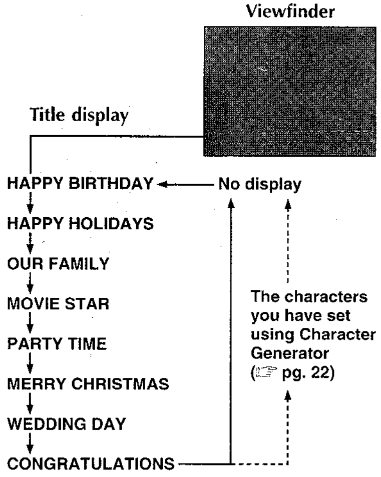
1 SELECT SUPER LOLUX MODE

Press **SUPER LOLUX** repeatedly to cycle through the modes as shown to the left. Once the desired mode appears, it is engaged.

- The mode's name is displayed for approx. 2 seconds, then disappears.

MAX	: To record a subject in a dark lit environment. When it is more convenient to shoot the subject with a brighter image even if the picture becomes slightly coarse.
NORM	: To record a subject in a dimly lit environment. When it is more convenient to shoot with a less coarse picture although the subject becomes slightly dark.
OFF	: Allows you to shoot dark scenes with no picture brightness adjustment.

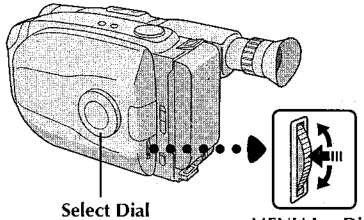
Instant Titles


Viewfinder
Title display
HAPPY BIRTHDAY
No display
HAPPY HOLIDAYS
OUR FAMILY
MOVIE STAR
PARTY TIME
MERRY CHRISTMAS
WEDDING DAY
CONGRATULATIONS
The characters you have set using Character Generator (☞ pg. 22)

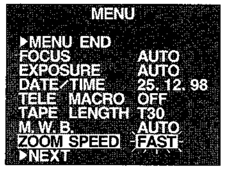
The camcorder has eight preset titles in memory. You can superimpose one of them above a previously stored title as shown in the illustration to the left.

1 SELECT PRESET TITLE

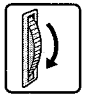
Press **TITLE** repeatedly to cycle through the preset titles until the desired title is displayed.

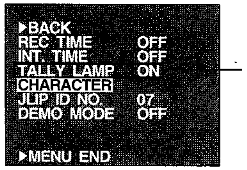


Viewfinder

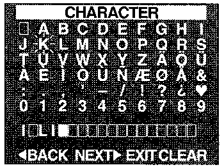

MENU
▶MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME 25. 12. 98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▶NEXT

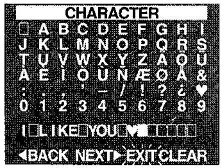
Menu Screen




▶BACK
REC TIME OFF
INT. TIME OFF
TALLY LAMP ON
CHARACTER
JLIP ID NO. 07
DEMO MODE OFF
▶MENU END

GR-AX480 only





Character Generator

You can enter an original title of up to 18 characters.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial. The Menu Screen appears.

2 ACCESS CHARACTER MENU

Rotate the MENU Jog Dial to move the highlight bar to "CHARACTER", then press it.

3 INPUT CHARACTERS

Rotate the MENU Jog Dial to make the desired character blink, then press it. The selected character appears at the bottom of the screen. Repeat for additional characters (max. 18).

- To select the location of the next character, rotate the MENU Jog Dial to make "**◀BACK**" or "**NEXT▶**" at the bottom of the screen blink, then press it repeatedly to move the blinking cursor underneath the desired location. Rotate the MENU Jog Dial when you are done, and the blinking cursor returns to the character grid.

4 END CHARACTER SETTING

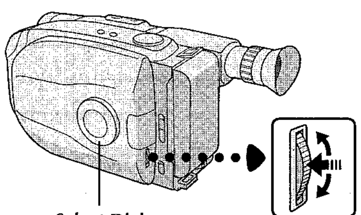
Rotate the MENU jog dial to make "EXIT" blink, then press it. The Menu Screen reappears and the highlight bar is placed on "MENU END".

5 CLOSE MENU

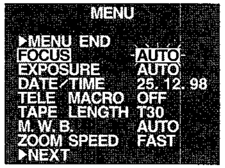
Press the MENU Jog Dial.

NOTES:

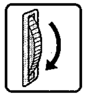
- *To erase a character you entered mistakenly, make "CLEAR" blink by rotating the MENU Jog Dial, then press it. All characters are deleted at once. Or, to erase selected characters only, first move the blinking cursor to the characters at the bottom row which you want to replace, then rotate the MENU Jog Dial to highlight "□" in the top left corner, and then press it.*
- *To display the characters you have set — "Date/Time/ Character Insert" (☞ pg. 17) or "Instant Titles" (☞ pg. 21).*
- *Characters may be set only in the Record-Standby mode.*

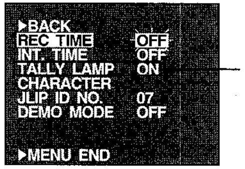


Viewfinder


MENU
▶MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME 25. 12. 98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▶NEXT

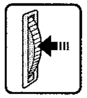
Menu Screen 1

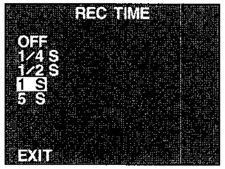


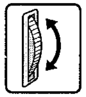

▶BACK
REC TIME OFF
INT. TIME OFF
TALLY LAMP ON
CHARACTER
JLIP ID NO. 07
DEMO MODE OFF
▶MENU END

GR-AX480 only

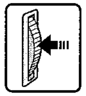
Menu Screen 2

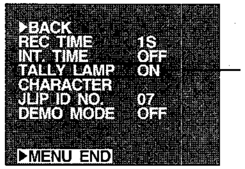



REC TIME
OFF
1/4 S
1/2 S
1 S
5 S
EXIT

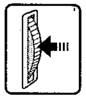


Setting Menu
(ex. REC TIME)




▶BACK
REC TIME 1S
INT. TIME OFF
TALLY LAMP ON
CHARACTER
JLIP ID NO. 07
DEMO MODE OFF
▶MENU END

GR-AX480 only



Normal Screen

Using Menu For Detailed Adjustment

This camcorder is equipped with an easy-to-use, on-screen menu system that simplifies many of the more detailed camcorder settings.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial. The Menu Screen appears.

2 SELECT FUNCTION

Rotate the MENU Jog Dial to place the highlight bar on the desired function.

- When the highlight bar reaches the bottom of Menu Screen 1, Menu Screen 2 is automatically displayed. When the highlight bar reaches the top of Menu Screen 2, Menu Screen 1 is automatically displayed.
- If the setting you want can't be found in the Menu Screen, place the highlight bar on "MENU END", then go to step **5**.

3 MAKE SETTING

Press the MENU Jog Dial. The setting menu of the selected function appears. The setting procedure depends on the function you select.

If you select "FOCUS", "EXPOSURE", "DATE/TIME", or "CHARACTER" . . .

..... see respective pages (FOCUS: ☞ pg. 26, 27, EXPOSURE: ☞ pg. 28, DATE/TIME: ☞ pg. 7, CHARACTER: ☞ pg. 22).

If you select "JLIP ID NO." . . .

..... press the MENU Jog Dial so that the number blinks, then rotate it until the desired number appears, and press it. Then rotate the MENU Jog Dial to move the highlight bar to "EXIT".

If you select any other functions . . .

..... rotate the MENU Jog Dial to move the highlight bar to the desired setting.

- If you decide you want to return to the previous setting, rotate the MENU Jog Dial to move the highlight bar to "EXIT".

4 END SETTING

Press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is on "MENU END".

5 CLOSE MENU

Press the MENU Jog Dial. The normal screen reappears.

NOTES:

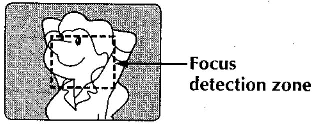
- *The menu function except "FOCUS" and "EXPOSURE" are not available while in the Record mode.*
- *For GR-AX380/AX280: The tally lamp is not built-in. "TALLY LAMP" in the Menu Screen is always set to "OFF" and cannot be set to "ON".*

Menu Screen Explanations

FOCUS	**AUTO**	Adjusts focus automatically.
	MANU	Allows you to adjust focus manually (☞ pg. 26, 27).
EXPOSURE	**AUTO**	Adjusts exposure automatically.
	MANU	Allows you to adjust exposure manually (☞ pg. 28).
DATE/TIME	Allows you to set the current date and time (☞ pg. 7).	
TELE MACRO	**OFF**	Usually the distance to a subject where the lens is in focus depends on the zoom magnification. Unless there is a distance more than 1m to the subject, the lens is out of focus at the maximum telephoto setting. When set to "ON", you can shoot a subject as large as possible at a distance of approx. 60 cm. • Depending on the zoom position, the lens may go out of focus.
	ON	
TAPE LENGTH	Allows you to set the tape length depending on the tape used (☞ pg. 8).	
M.W.B.	**AUTO**	This camcorder's Automatic Colour Temperature system senses the colour temperature of the ambient lighting for automatic white balance adjustment. However, precise colour adjustment is not possible under the following conditions: • When an object is in various shades of the same colour. • When a predominantly red or brown object is being shot outdoors. In these cases, use the camcorder's built-in preset filters for white balance adjustment (☞ pg. 29).
	☀ : FINE	
	⛅ : CLOUD	
	✳ : HALOGEN	
	MWB	
ZOOM SPEED	**FAST**	Allows you to set the zooming speed (☞ pg. 14).
	SLOW	

REC TIME	This feature allows you to set the parameters for Animation and Time-Lapse recording (☞ pg. 31).	
INT. TIME	This feature allows you to set the parameters for Self-Timer (☞ pg. 30) and Time-Lapse recording (☞ pg. 31).	
TALLY LAMP	**ON**	The tally lamp comes on to signal the start of recording. (available only for GR-AX480)
	OFF	The tally lamp remains off at all times. (GR-AX380/AX280: always set to this mode.)
CHARACTER	Allows you to enter an original title of up to 18 characters (☞ pg. 22).	
JLIP ID NO.	This number is necessary when connecting the camcorder to a device such as a computer using the J terminal (JLIP). The numbers range from 01 to 99. Factory setting is 07.	
DEMO MODE	**OFF**	Automatic demonstration will not take place.
	ON	Demonstrates certain functions such as the Fader, Instant Titles etc. When "DEMO MODE" is set to "ON" and the Menu Screen is closed, demonstration starts. **NOTES:** ● When a tape whose Erase Protection tab is in the position that allows recording is loaded in the camcorder, demonstration is not available. ● By turning off the camcorder or inserting a tape whose Erase Protection tab is in the position that allows recording into it, "DEMO MODE" is set to "OFF" automatically. ● During demonstration, all functions except zoom are disabled.

▨ = Factory setting and when the Select Dial is set to AUTO LOCK


Focus
detection zone

Focusing

Auto Focus

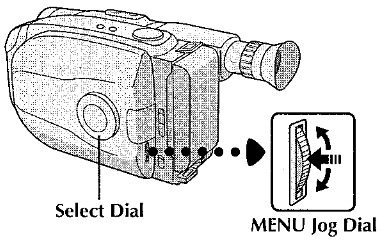
The camcorder's Full Range AF system offers continuous shooting ability from close-up to infinity. However, correct focus may not be obtainable in the situations listed below (in these cases use manual focusing):

- When two subjects overlap in the same scene.
- When illumination is low.*
- When the subject has no contrast (difference in brightness and darkness), such as a flat, one-colour wall, or a clear, blue sky.*
- When a dark object is barely visible.*
- When the scene contains minute patterns or identical patterns that are regularly repeated.
- When the scene is affected by sunbeams or light reflecting off the surface of a body of water.
- When shooting a scene with a high-contrast background.

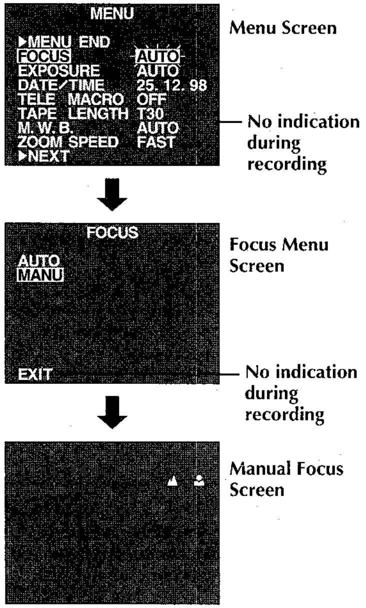
* The low-contrast warning "⛰👤" appears.

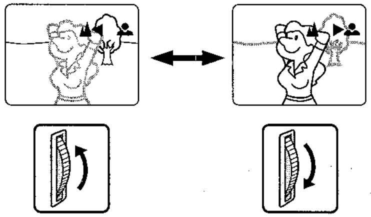
NOTES:

- *If the lens is smeared or blurred, accurate focusing is not possible. Keep the lens clean, wiping with a piece of soft cloth if it gets dirty. When condensation occurs, wipe with a soft cloth or wait for it to dry naturally.*
- *When shooting a subject close to the lens, zoom-out first (☞ pg. 14). If zoomed-in in the auto focus mode, the camcorder could automatically zoom out depending on the distance between the camcorder and the subject. When Tele Macro (☞ pg. 24) is activated, the camcorder will not zoom out automatically.*


Select Dial
MENU Jog Dial

Viewfinder


MENU
▶MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME 25. 12. 98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▶NEXT
Menu Screen
No indication during recording
FOCUS
AUTO
MANU
EXIT
Focus Menu Screen
No indication during recording
⛰ 👤
Manual Focus Screen



Manual Focus

NOTE:

You should already have made the necessary viewfinder adjustments (☞ pg. 10). If you haven't, do so before continuing.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial. The Menu Screen appears, and the highlight bar is placed on "FOCUS".

2 ACCESS FOCUS MENU SCREEN

Press the MENU Jog Dial.

3 ACCESS MANUAL FOCUS

Rotate the MENU Jog Dial to move the highlight bar to "MANU", then press it. "⛰" and "👤" appear. The focus is locked at this point.

4 ADJUST FOCUS

To farther subject . . .

Rotate the MENU Jog Dial upward. "◀" appears and blinks.
Go to step **5**.

To nearer subject . . .

Rotate the MENU Jog Dial downward. "▶" appears and blinks.
Go to step **5**.

5 END ADJUSTMENT OF FOCUS

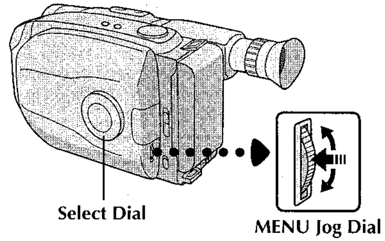
Press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is placed on "MENU END".

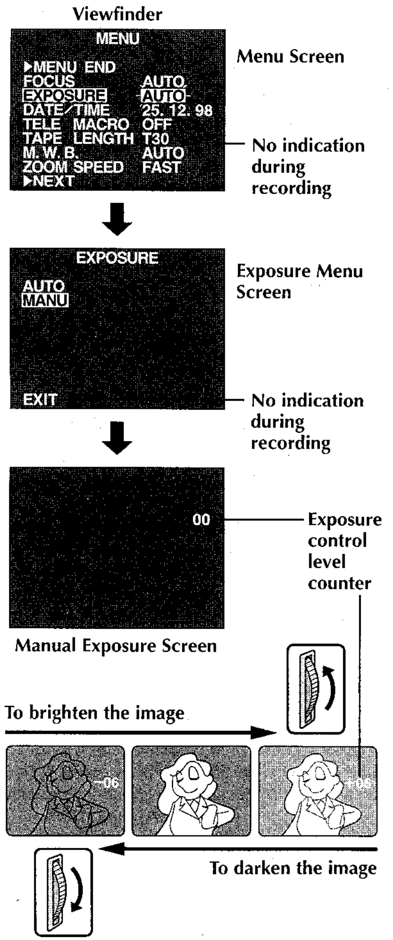
6 CLOSE MENU

Press the MENU Jog Dial. The Menu Screen disppears and "⛰👤" reappears to indicate the focus is locked.

NOTES:

- *To return to Auto Focus, select "AUTO" in step **3**.*
- *To re-adjust Manual Focus, repeat the procedure from step **1**.*
- *Be sure to focus the lens in the maximum telephoto position when you use the Manual Focus mode. If you focus in on a certain subject in the wide-angle position, sharply focused images cannot be obtained when zoomed up because the depth-of-field is reduced at longer focal lengths.*
- *When the focus level cannot be adjusted any farther or closer, "⛰" or "👤" will blink.*


Select Dial
MENU Jog Dial


Viewfinder
MENU
▸MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME 25. 12. 98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▸NEXT
Menu Screen
No indication during recording
EXPOSURE
AUTO
MANU
EXIT
Exposure Menu Screen
No indication during recording
00
Exposure control level counter
Manual Exposure Screen
To brighten the image
-06
To darken the image

Exposure Control

This feature automatically adjusts the iris for the best available picture quality, but you can override and make the adjustment manually.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial. The Menu Screen appears.

2 ACCESS EXPOSURE MENU SCREEN

Rotate the MENU Jog Dial to move the highlight bar to "EXPOSURE" and press it.

3 ACCESS MANUAL EXPOSURE

Rotate the MENU Jog Dial to move the highlight bar to "MANU", then press it. "00" (exposure control level counter) appears.

4 ADJUST EXPOSURE

To brighten the image . . .

Rotate the MENU Jog Dial upward. The exposure control level counter increases (maximum +06). Go to step **5**.

To darken the image . . .

Rotate the MENU Jog Dial downward. The exposure control level counter decreases (maximum –06). Go to step **5**.

5 END ADJUSTMENT OF EXPOSURE

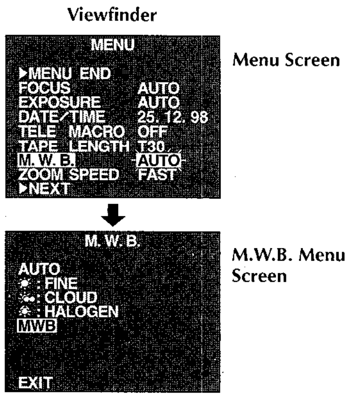
Press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is placed on "MENU END".

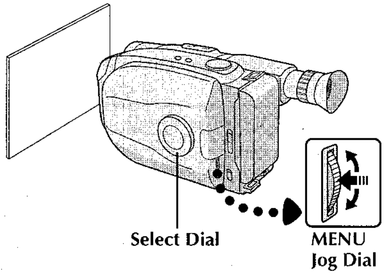
6 CLOSE MENU

Press the MENU Jog Dial. The Menu Screen disappears and the exposure control level counter reappers to indicate the exposure is adjusted.

NOTES:

- *To return to the factory setting, select "AUTO" in step **3**.*
- *To re-adjust exposure, repeat the procedure from step **1**.*


Viewfinder
MENU
▸MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME 25. 12. 98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▸NEXT
Menu Screen
M. W. B.
AUTO
☀ : FINE
☁ : CLOUD
✱ : HALOGEN
MWB
EXIT
M.W.B. Menu Screen


Select Dial
MENU Jog Dial

NOTES:

- *To switch to automatic white balance adjustment, set the M.W.B. in the Menu Screen to "AUTO", or turn the Select Dial to "AUTO LOCK".*
- *Re-adjust the White Balance when the lighting has changed, when the camcorder has been turned off and on again, or when the Select Dial's position has been changed.*
- *When adjusted by putting coloured paper in front of the subject in step **1** of "MWB", this unit makes its colour temperature standard for automatic white balance. So you can enjoy shooting with different colours. For example, when adjusting with red, blue or yellow colours, the image becomes the colour which approximates to green, orange or purple respectively.*
- *It is helpful to connect your camcorder to a colour monitor when adjusting the white balance (☞ pg. 36).*

Manual White Balance Adjustment (M.W.B.)

The white balance is usually adjusted automatically. However, the more advanced camcorder operator would prefer to control this function manually and achieve a more professional colour/tint reproduction.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial. The Menu Screen appears.

2 ACCESS WHITE BALANCE MENU SCREEN

Rotate the MENU Jog Dial to move the highlight bar to "M.W.B.", then press it.

3 SELECT WHITE BALANCE

Rotate the MENU Jog Dial to move the highlight bar to the required white balance.

"AUTO"	Automatic adjustment
"☀ : **FINE**"	Outdoors on sunny day
"☁ : **CLOUD**"	Outdoors on cloudy day
"✱ : **HALOGEN**"	Light source is halogen or tungsten lamp
"MWB"	When using a personal White Balance Setting stored in memory (see below.)

4 CLOSE MENU

Press the MENU Jog Dial. The Menu Screen reappears. Then press the MENU Jog Dial again to exit the Menu Screen.

MWB

MWB sets the colour temperature for the subject's light source so you can shoot with natural colours that are unaffected by surroundings, even when there are multiple subjects with different colour temperatures.

1 PREPARE WHITE OBJECT

Point the camcorder at a white, flat object such as a sheet of white paper.

2 SELECT MWB

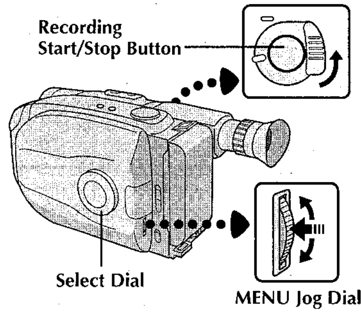
Follow step **1** through **3** of the above, select "MWB".

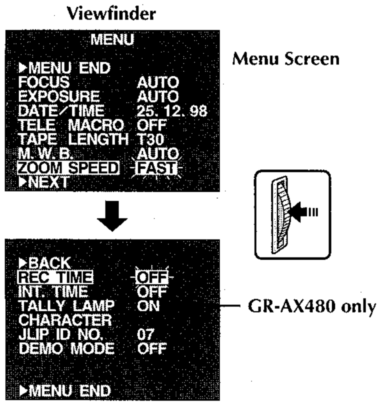
3 MEMORIZE WHITE BALANCE

Press the MENU Jog Dial until "MWB" begins blinking. "MWB" blinks while the white balance is being stored in memory, then the Menu Screen reappears when memorization is complete.

4 CLOSE MENU

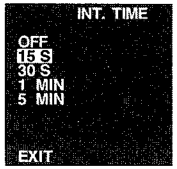
Press the MENU Jog Dial.





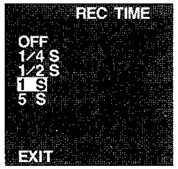
MENU
▶MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME 25. 12. 98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▶NEXT

▶BACK
REC TIME OFF
INT. TIME OFF
TALLY LAMP ON
CHARACTER
JLIP ID NO. 07
DEMO MODE OFF
▶MENU END



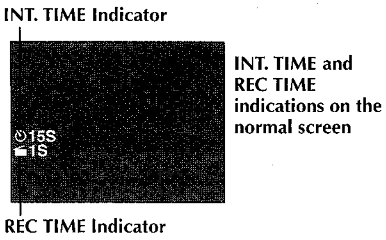
INT. TIME
OFF
15 S
30 S
1 MIN
5 MIN
EXIT

INT. TIME Menu



REC TIME
OFF
1/4 S
1/2 S
1 S
5 S
EXIT

REC TIME Menu



⏱15S
1S

Self-Timer

You can set the delay between pressing the Recording Start/Stop Button and the actual start of recording. If you secure the camcorder, you (or whomever is operating the camcorder) can enter the scene before recording starts.

NOTE:

Make sure the camcorder is in the Record-Standby mode before performing the following steps.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial.

2 ACCESS INT. TIME MENU SCREEN

Rotate the MENU Jog Dial to move the highlight bar to "INT. TIME", then press the MENU Jog Dial.

3 SET INTERVAL TIME

Rotate the MENU Jog Dial to move the highlight bar to the desired time, then press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is placed on "MENU END".

4 CLOSE MENU

Press the MENU Jog Dial.

5 START DELAYED RECORDING

Press the Recording Start/Stop Button. When the selected time has elapsed, recording begins automatically.

To Cancel Self-Timer . . .

... Before the recording begins, press the Recording Start/Stop Button to display "≡PAUSE≡", then set "INT. TIME" in the Menu Screen to "OFF".

Animation

Give stationary scenes or objects an illusion of movement. This function allows you to shoot a series of pictures, each slightly different, of the same object for a brief period of time.

NOTE:

Make sure the camcorder is in the Record-Standby mode before performing the following steps.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press MENU Jog Dial.

2 SET RECORDING TIME

Rotate the MENU Jog Dial to move the highlight bar to "REC TIME", then press the MENU Jog Dial. The REC TIME Menu appears. Rotate the MENU Jog Dial to move the highlight bar to the desired time, then press the MENU Jog Dial. The Menu Screen reappears. Press the MENU Jog Dial again to exit the Menu Screen.

3 START RECORDING

Press the Recording Start/Stop Button after focusing on the subject. The recording stops automatically after the selected period of time.

4 ASSEMBLE SERIES OF PICTURES

Repeat step **3** for the desired number of pictures.

5 RELEASE ANIMATION MODE

Set "REC TIME" in the Menu screen to "OFF".

NOTES:

- *For best results, make sure the camcorder is secured when shooting in Animation or Time-Lapse mode.*
- *Fade-in/out cannot be performed during Animation or Time-Lapse shooting.*
- *Before performing other operations following Animation or Time-Lapse recording, make sure the Animation or Time-Lapse mode is deactivated.*
- *Self-Timer, Animation and Time-Lapse are cancelled when the power is shut off or when the cassette is ejected.*

Time-Lapse

You can record sequentially at preset time spans. Leaving the camcorder aimed at a specific subject, you can record subtle changes over an extended period of time.

NOTE:

Make sure the camcorder is in the Record-Standby mode before performing the following steps.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press MENU Jog Dial.

2 SET INTERVAL BETWEEN RECORDINGS

Rotate the MENU Jog Dial to move the highlight bar to "INT. TIME", then press the MENU Jog Dial. The INT. TIME Menu appears. Rotate the MENU Jog Dial to move the highlight bar to the desired time, then press the MENU Jog Dial. The Menu Screen reappears.

3 SET RECORDING TIME

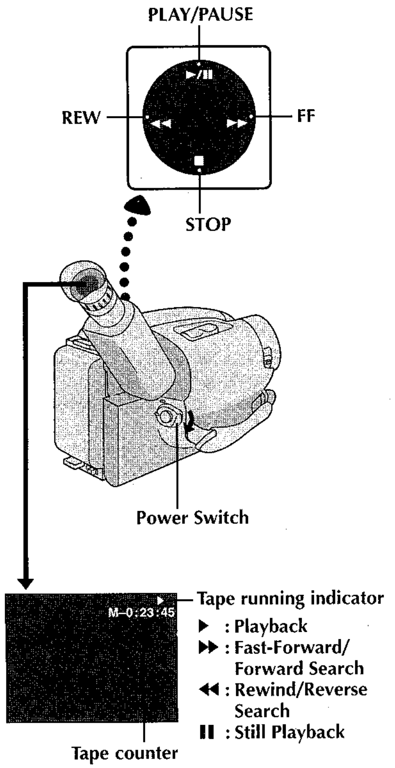
Rotate the MENU Jog Dial to move the highlight bar to "REC TIME", then press the MENU Jog Dial. The REC TIME Menu appears. Rotate the MENU Jog Dial to move the highlight bar to the desired time, then press the MENU Jog Dial. The Menu Screen reappears. Press the MENU Jog Dial again to exit the Menu Screen.

4 START TIME-LAPSE RECORDING

Press the Recording Start/Stop Button. Recording and intervals alternate automatically.

5 RELEASE TIME-LAPSE MODE

To release when "≡PAUSE≡" is displayed, set "REC TIME" and "INT. TIME" in the Menu Screen to "OFF". To release when "≡PAUSE≡" and "REC ▸▸▸" are not displayed, press the Recording Start/Stop Button to display "≡PAUSE≡", then set "REC TIME" and "INT. TIME" in the Menu Screen to "OFF".


PLAY/PAUSE
REW
FF
STOP
Power Switch
M–0:23:45
Tape running indicator
▶ : Playback
▶▶ : Fast-Forward/ Forward Search
◀◀ : Rewind/Reverse Search
❚❚ : Still Playback
Tape counter

1 LOAD A CASSETTE

Slide **EJECT** to open the cassette holder, then insert the cassette with the label facing out. Press **PUSH** to ensure the holder is closed and locked.

2 SELECT MODE

Set the Power Switch to "PLAY". The power indicator lights.

3 PLAY BACK

Press **PLAY/PAUSE**. The playback picture appears.

4 STOP PLAYBACK

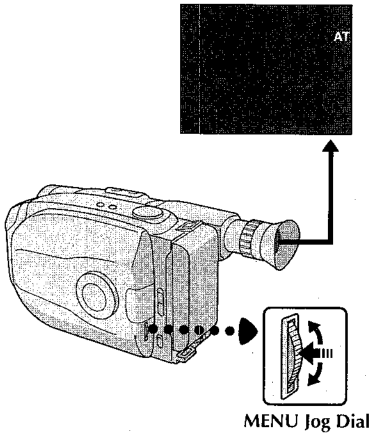
Press **STOP**.

Rewind or Fast-forward the tape

Press **REW** to rewind, or **FF** to fast-forward the tape during Stop mode.

NOTE:

The camcorder shuts off automatically after about 5 minutes in Stop mode. To turn on again, set the Power Switch to "POWER OFF", then to "PLAY".


AT
MENU Jog Dial

Tracking

This function can be used to eliminate noise bars that appear on-screen during playback. Initial setting is Auto Tracking. Manual Tracking is also available.

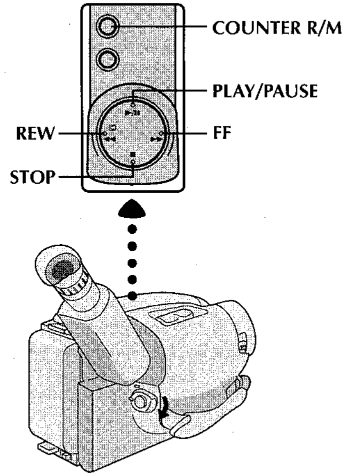
1 ACTIVATE MANUAL TRACKING

Press the MENU Jog Dial during playback mode. Keep rotating it until noise bars disappear.

- To return to Auto Tracking, press the MENU Jog Dial. "AT" blinks. When Auto Tracking finishes, the indication disappears.

NOTES:

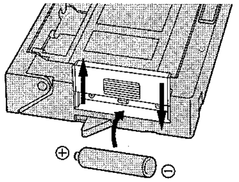
- *When noise bars appear during playback, the camcorder enters the Auto Tracking mode and "AT" is displayed.*
- *Manual Tracking may not work with tapes recorded on other VCRs or camcorders.*



FEATURE:	**Still Playback**
PURPOSE:	To pause during playback.
OPERATION:	**1)** Press **PLAY/PAUSE** during playback. **2)** To resume normal playback, press **PLAY/PAUSE** again.
NOTE:	*Noise bars appear and pictures may become monochrome during Still Playback. This is normal.*
FEATURE:	**Shuttle Search**
PURPOSE:	To allow high-speed search in either direction.
OPERATION:	***Forward Search*** **1)** Press **FF** during playback. ***Reverse Search*** **1)** Press **REW** during playback.
NOTE:	*Noise bars appear and pictures may become monochrome or darken in Shuttle Search. This is normal.*
FEATURE:	**Counter Memory Function**
PURPOSE:	To make it easier to locate a specific tape segment.
OPERATION:	**1)** Press **COUNTER R/M** and hold for more than 1 second. The counter resets to "0:00:00". **2)** Press **COUNTER R/M** for less than 1 second. "M" appears. **3)** After recording or playback, press **STOP**, then **REW**. The tape automatically stops at or close to 0:00:00. **4)** Press **PLAY/PAUSE** to start playback.
NOTES:	● *The counter memory functions in the Fast-Forward and Rewind modes.* ● *To disable Counter Memory Function, press **COUNTER R/M** for less than 1 second so the "M" disappears.*

Cassette Adapter

Use this to play back a VHS-C video cassette recorded with this camcorder. It is fully compatible with any VHS video cassette recorder. The C-P7U adapter is battery powered and automatically performs tape loading and unloading.

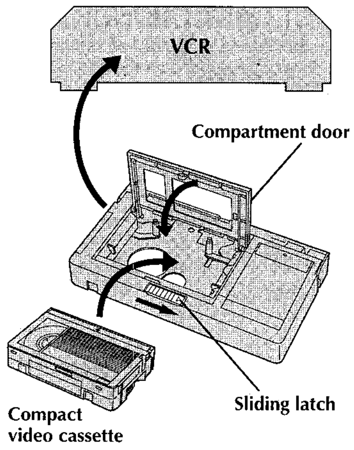


1 INSERT BATTERY

Slide the battery cover up to remove it, and install one "R6(AA)" size battery as shown in the illustration to the left. Then reattach the cover.

2 INSERT CASSETTE IN ADAPTER

Slide the latch to open the adapter compartment door, then insert the cassette and close the compartment door.

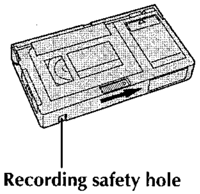


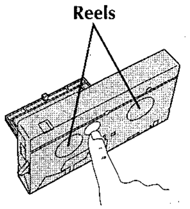
3 PLAY BACK ON CONNECTED VCR

Load the cassette adapter into the VCR and play the tape back as you would any other.

4 REMOVE CASSETTE FROM ADAPTER

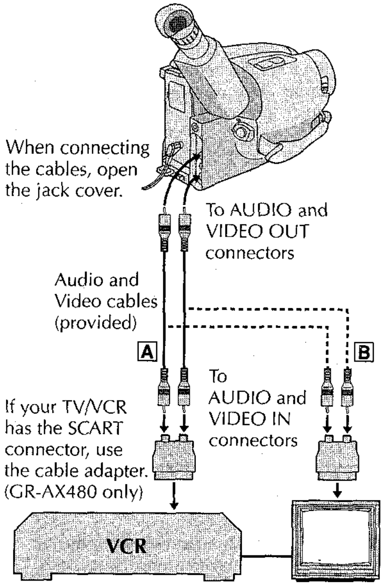
Slide the latch and the compartment door opens automatically. This may take around 10 seconds. Do not attempt to force the adapter open. Then insert your finger in the hole on the underside of the adapter as shown in the illustration to the left, push up and remove the cassette.

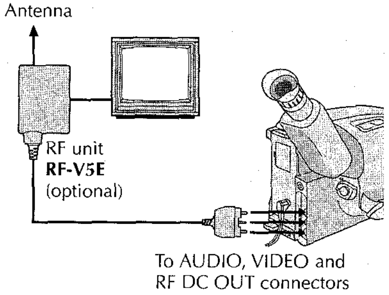




NOTES:

- *During tape loading and unloading, do not touch the reels for safety and tape protection.*
- *During special-effect playback (slow motion, still frame, etc.), the picture may vibrate or noise bars may appear on the screen.*
- *To record on a VCR using a compact cassette and the adapter, cover the adapter's recording safety hole with adhesive tape.*


When connecting the cables, open the jack cover.
To AUDIO and VIDEO OUT connectors
Audio and Video cables (provided)
A
B
To AUDIO and VIDEO IN connectors
If your TV/VCR has the SCART connector, use the cable adapter. (GR-AX480 only)
VCR


Antenna
RF unit
RF-V5E
(optional)
To AUDIO, VIDEO and RF DC OUT connectors

NOTES:

- *It is recommended to use the AC Power Adapter/Charger as the power supply instead of the battery pack.*
- *To monitor the picture and sound from the camcorder without inserting a tape, set the camcorder's Power Switch to "CAMERA", then set your TV to the appropriate input mode.*
- *If you have a TV or speakers that are not specially shielded, do not place the speakers adjacent to the TV as interference will occur in the camcorder playback picture.*

There are three basic types of connections. When making the connections, refer also to your VCR and TV instruction manuals.

Connection To A VCR A (Editing, Dubbing and Playback)

NOTE:

Use the provided Audio and Video cables.

1 CONNECT CAMCORDER TO VCR

As shown in the illustration to the left, connect the Audio and Video cables between the AUDIO and VIDEO OUT connectors on the camcorder and those on the VCR.

2 SUPPLY POWER

Turn on the camcorder, the VCR and the TV.

3 SELECT MODE

Set the VCR to its AUX input mode, and set the TV to its VIDEO mode.

Connection To A TV With A/V Input Connectors B (Playback ONLY)

NOTE:

Use the provided Audio and Video cables.

1 CONNECT CAMCORDER TO TV

As shown in the illustration to the left, connect the Audio and Video cables between the AUDIO and VIDEO OUT connectors on the camcorder and those on the TV.

2 SELECT MODE

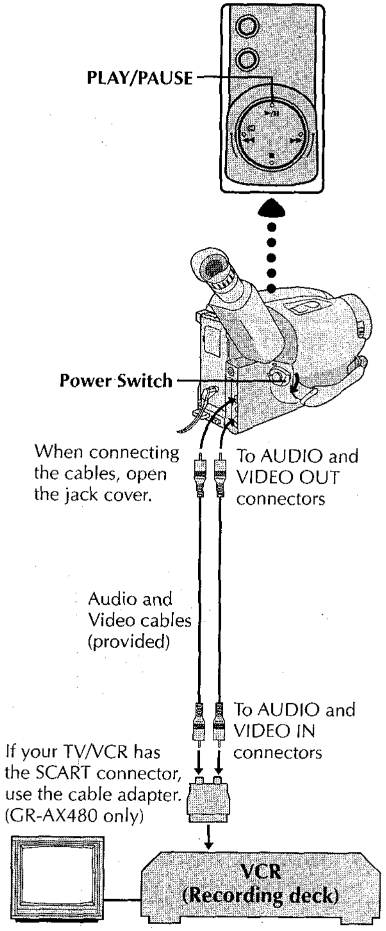
Set the TV to its VIDEO or AV mode (as specified in its instructions).

Connection To A TV With NO A/V Input Connectors (Playback ONLY)

NOTE:

Use the optional RF-V5E RF unit.

*Refer to the RF-V5E instruction manual for connection procedure.


PLAY/PAUSE
Power Switch
When connecting the cables, open the jack cover.
To AUDIO and VIDEO OUT connectors
Audio and Video cables (provided)
To AUDIO and VIDEO IN connectors
If your TV/VCR has the SCART connector, use the cable adapter. (GR-AX480 only)
VCR
(Recording deck)

Tape Dubbing

1 CONNECT EQUIPMENT

Following the illustration to the left, connect the camcorder and the VCR.

2 PREPARE FOR DUBBING

Set the camcorder's Power Switch to "PLAY", turn on the VCR's power, and insert the appropriate cassettes in the camcorder and the VCR.

3 SELECT VCR MODE

Engage the VCR's AUX and Record-Pause modes.

4 FIND EDIT-IN POINT

Engage the camcorder's Play mode to find a spot just before the edit-in point. Once it's reached, press **PAUSE** on the camcorder.

5 START EDITING

Press **PLAY** on the camcorder and engage the VCR's Record mode.

6 STOP EDITING TEMPORARILY

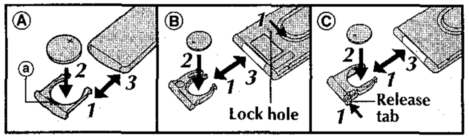
Engage the VCR's Record-Pause mode and press **PAUSE** on the camcorder.

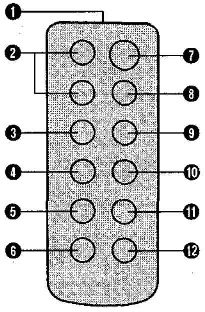
7 EDIT MORE SEGMENTS

Repeat steps **4** through **6** for additional editing, then stop the VCR and camcorder when finished.

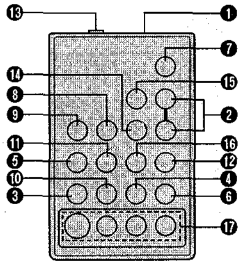
USING REMOTE CONTROL UNIT (GR-AX480 only)

The Full-Function Remote Control Unit can operate this camcorder from a distance as well as the basic operations (PLAY, STOP, PAUSE, FF, and REW) of your VCR. This remote control unit makes additional recording functions possible.





RM-V705U
(provided with
GR-AX480 only)



RM-V700U
(optional)

INSTALLING THE BATTERY

1 PULL OUT BATTERY HOLDER

Type Ⓐ : Pull out by inserting a pointed instrument into slot ⓐ.
Type Ⓑ : Pull out while sliding the lock hole.
Type Ⓒ : Pinch the release tab and pull out.

2 INSERT BATTERY

Making sure the plus (+) side is up, insert the lithium battery (CR2025)* into the battery holder.

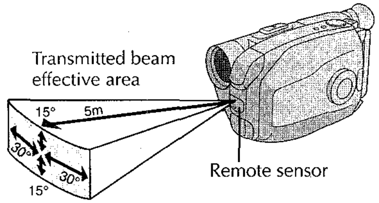
3 REPLACE BATTERY HOLDER

Insert the battery holder into the remote control unit, and push the holder until it clicks into place.

*Read the caution concerning lithium batteries (☞ pg. 2).

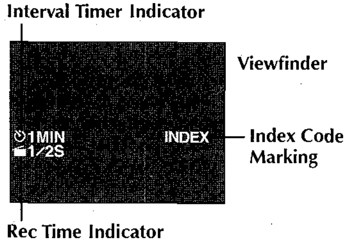
BUTTONS	FUNCTIONS	
	With the camcorder's power switch set to "CAMERA".	**With the camcorder's power switch set to "PLAY".**
❶ **Infrared beam transmitting window**	Transmits the beam signal.	
❷ **ZOOM (T/W) Buttons**	Zoom in/out (☞ pg. 14)	—
❸ **PLAY Button**	—	Playback start (☞ pg. 34)
❹ **STOP Button**	—	Stop (☞ pg. 34)
❺ **REW Button**	Retake (rewind)/Quick Review (☞ pg. 15)	Rew/Rew Shuttle Search (☞ pg. 32, 34)
❻ **INSERT Button**	—	Insert Editing (☞ pg. 44)
❼ **START/STOP Button**	Functions same as the Recording Start/Stop button on the camcorder.	
❽ **INT. TIME Button**	Self-Timer/Time-Lapse (☞ pg. 39)	—
❾ **REC TIME Button**	Animation/Time-Lapse (☞ pg. 39)	—
❿ **PAUSE Button**	—	Pause (☞ pg. 34)
⓫ **FF Button**	Retake (forward) (☞ pg. 15)	FF/FF Shuttle Search (☞ pg. 32, 34)
⓬ **A.DUB Button**	—	Audio dubbing (☞ pg. 45)
⓭ **PAUSE IN Connector**	—	☞ pg. 41
⓮ **MBR SET Button**	—	☞ pg. 40
⓯ **VISS Button**	Index Code marking (☞ pg. 39)	—
⓰ **VCR CTL Button**	—	☞ pg. 40
⓱ **R.A.EDIT Buttons**	—	☞ pg. 42

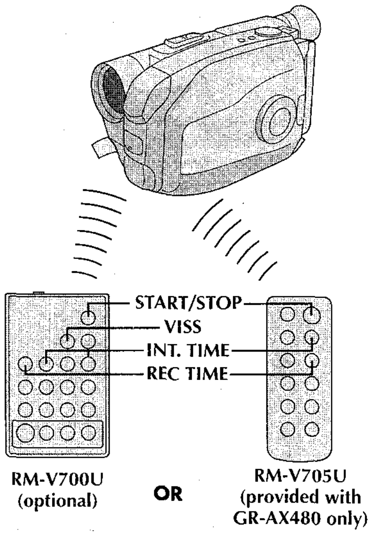
⓭ — ⓱ : RM-V700U only.



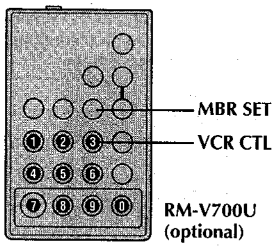
When using the remote control, be sure to point it at the remote sensor. The above illustration shows the approximate transmitted beam effective area for indoor use.

The transmitted beam may not be effective or may cause incorrect operation outdoors or when the remote sensor is directly exposed to sunlight or powerful lighting.





FEATURE:	**Self-Timer, Animation and Time-Lapse**
PURPOSE:	The remote control lets you set/release Interval Timer and Rec Time functions as well as the Menu Screen.
OPERATION:	***Self-Timer*** **1) Set** Instead of performing steps **1** through **4** on pg. 30 ("Self-Timer"), press **INT. TIME** on the remote control. Each time **INT. TIME** is pressed, the Interval Timer indicator appears, changing in the following order: 15S, 30S, 1MIN, 5MIN and No indication (off). **2) Release** Instead of setting "INT. TIME" to "OFF" in the Menu, press **INT. TIME** on the remote control until the Interval Timer indicator disappears. ***Animation*** **1) Set** Instead of performing steps **1** and **2** on pg. 31 ("Animation"), press **REC TIME** on the remote control. Each time **REC TIME** is pressed, the Rec Time indicator appears, changing in the following order: 1/4S, 1/2S, 1S, 5S and No indication (off). **2) Release** Instead of using the Menu in step **5** on pg. 31, press **REC TIME** on the remote control until the Rec Time indicator disappears. ***Time-Lapse*** **1) Set** Instead of performing steps **1** through **3** on pg. 31 ("Time-Lapse"), press **INT. TIME** and **REC TIME** on the remote control. Each time **INT. TIME** is pressed, the Interval Timer indicator appears, changing in the following order: 15S, 30S, 1MIN, 5MIN and No indication (off). Each time **REC TIME** is pressed, the Rec Time indicator appears, changing in the following order: 1/4S, 1/2S, 1S, 5S and No indication (off). **2) Release** Instead of using the Menu in step **5** on pg. 31, press **INT. TIME** and **REC TIME** on the remote control until the indicators disappear.
NOTE:	*Also refer to pg. 30 and 31.*
FEATURE:	**Index Code Marking (RM-V700U only)**
PURPOSE:	To give you automatic access to any selected point on a recording.
OPERATION:	1) Press **VISS** once to place the index code. "INDEX" blinks during marking.
NOTE:	*If **VISS** is pressed during Record-Standby mode, the mark is placed where **START/STOP** is pressed.*


MBR SET
VCR CTL
RM-V700U
(optional)

Random Assemble Editing [R.A.Edit]

Create edited videos easily using your camcorder as the source player. You can select up to 8 "cuts" for automatic editing, in any order you like. R.A.Edit is more easily performed when the optional RM-V700U MBR (Multi-Brand Remote, ☞ pg. 38) is set to operate with your brand of VCR (see VCR CODE LIST), but can also be performed by operating the VCR manually.
Before operation, make sure the lithium battery is installed in the remote control RM-V700U (☞ pg. 38).

SET REMOTE/VCR CODE

1 SET REMOTE TO OPERATE VCR

Turn off the power to the VCR and point the remote towards the VCR's infrared sensor. Then, referring to the VCR CODE LIST on the left, press and hold **MBR SET**, and press button **(A)** and then **(B)**.

- The code is automatically set once you release the **MBR SET** button, and the VCR's power comes on.

2 OPERATE VCR

Make sure the VCR's power is on. Then, while holding **VCR CTL**, press the button on the remote for the desired function. The functions the remote can control are PLAY, STOP, PAUSE, FF, REW and VCR REC STBY (you don't need to press **VCR CTL** for this one).

You're now ready to try Random Assemble Editing.

IMPORTANT

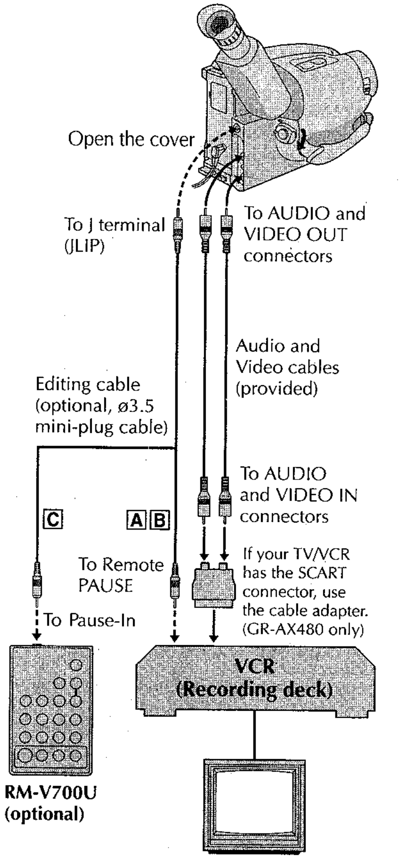
Although the MBR is compatible with JVC VCRs and those of many other makers, it may not work with yours or may offer limited functions.

NOTES:

- *If the VCR's power doesn't come on in step **1**, try another code from the VCR CODE LIST.*
- *Some brands of VCR don't come on automatically. In this case, turn the power on manually and try step **2**.*
- *If the RM-V700U is not able to control the VCR, use the controls on the VCR.*

VCR CODE LIST

VCR BRAND NAME	BUTTONS (A)	(B)
AKAI	❻	❷
	❻	❹
	❼	❼
BLAUPUNKT	❶	❸
FERGUSON	❾	❼
	❾	❽
	❸	❷
GRUNDIG	❶	❹
	❸	❹
HITACHI	❻	❻
	❻	❸
JVC A	❾	❶
B	❾	❻
C	❾	❸
MITSUBISHI	❻	❼
	❻	❽
NEC	❸	❼
	❸	❽
PANASONIC	❶	❸
	❶	❼
	❶	❶
	❾	❹
	❶	❽
PHILIPS	❶	❾
	❾	❺
	❶	❶
	❾	❹
	❾	❶
	❾	❻
	❶	❷
	❸	❸
SANYO	❸	❻
	❸	❺
SELECO, REX	❾	❶
	❾	❻
SHARP	❶	❺
	❶	⓿
SONY	❻	❺
	❻	⓿
	❸	❾
	❸	❶
THOMSON, TELEFUNKEN, SABA, NORDMENDE	❾	❶
	❾	❻
	❾	❼
	❸	❷
TOSHIBA	❻	❾
	❻	❶


Open the cover
To J terminal
(JLIP)
To AUDIO and
VIDEO OUT
connectors
Audio and
Video cables
(provided)
Editing cable
(optional, ø3.5
mini-plug cable)
To AUDIO
and VIDEO IN
connectors
C
A B
To Remote
PAUSE
To Pause-In
If your TV/VCR
has the SCART
connector, use
the cable adapter.
(GR-AX480 only)
VCR
(Recording deck)
RM-V700U
(optional)

MAKE CONNECTIONS

1 CONNECT TO . . .

A JVC VCR EQUIPPED WITH REMOTE PAUSE TERMINAL
Connect the editing cable to the Remote PAUSE terminal.

B JVC VCR NOT EQUIPPED WITH REMOTE PAUSE TERMINAL BUT EQUIPPED WITH R.A. EDIT CONNECTOR
Connect the editing cable to the R.A.EDIT connector.

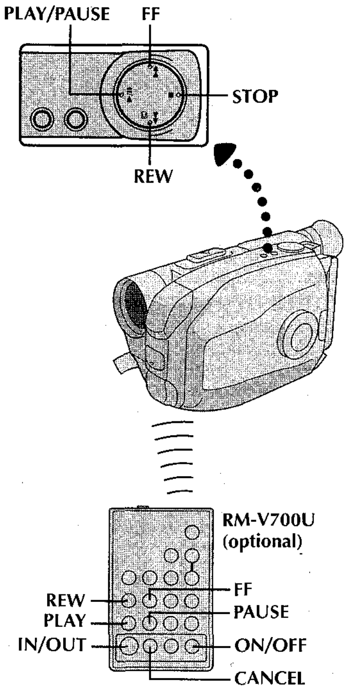
C VCR OTHER THAN TYPE A OR B
Connect the editing cable to the RM-V700U's Pause-In jack.

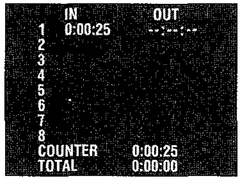
2 PREPARE CAMCORDER

Insert a recorded tape and set the Power Switch to "PLAY".

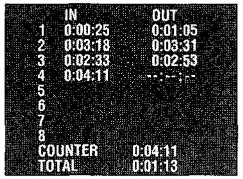
3 PREPARE VCR

Turn the power on, insert a recordable tape and engage the AUX mode (refer to VCR's instructions).





```
   IN         OUT
1  0:00:25    --:--:--
2
3
4
5
6
7
8
COUNTER  0:00:25
TOTAL    0:00:00
```



```
   IN         OUT
1  0:00:25    0:01:05
2  0:03:18    0:03:31
3  0:02:33    0:02:53
4  0:04:11    --:--:--
5
6
7
8
COUNTER  0:04:11
TOTAL    0:01:13
```

SELECT SCENES

1

ACCESS R.A. EDIT COUNTER DISPLAY

Press **PLAY/PAUSE**, then press **ON/OFF** and the counter display appears in the viewfinder and the screen of the connected TV.

2

REGISTER BEGINNING OF SCENE

Press **REW** or **FF** to locate the beginning of a scene you want, then press **IN/OUT** to register that point. The data appears under "IN" on the display.

3

REGISTER END OF SCENE

Press **REW** or **FF** to locate the end of the scene and press **IN/OUT** to register it. The data appears under "OUT" on the display. The total time of the registered scene(s) is displayed at the bottom of the screen.

4

REGISTER ADDITIONAL SCENES

Repeat steps **2** and **3** for each additional scene (as many as 8).

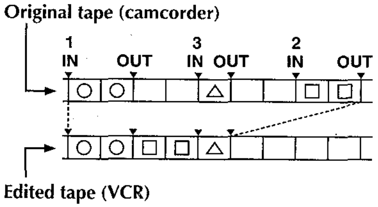
5

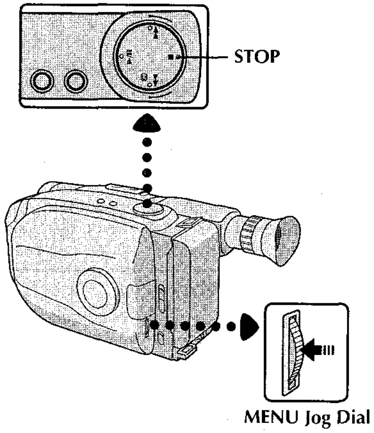
MAKE CORRECTIONS

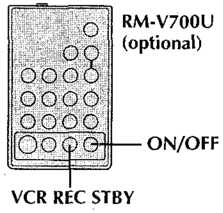
Press **CANCEL** during steps **2** and **3** to erase the most recently registered point.

NOTES:

- *There must be at least one second between an in-point and its corresponding out-point.*
- *To ensure correct operation, there should be at least 15 seconds between an out-point and the next in-point.*
- *Blank portions of tape cannot be registered as in-points or out-points.*
- *If it takes more than 5 minutes to search for an in-point, the VCR's Record-Pause mode is cancelled and editing doesn't take place.*
- *Pressing* ***ON/OFF*** *clears all in- and out-points from memory.*
- *Leave a small margin for error around each in-point to ensure the scene is recorded in its entirety.*







AUTOMATIC EDITING TO VCR

1

ENGAGE VCR'S RECORD-PAUSE MODE

Point the remote control towards the VCR's infrared sensor and press **VCR REC STBY**, or manually engage the VCR's Record-Pause mode.

2

BEGIN AUTOMATIC EDITING

Press the **MENU Jog Dial** on the camcorder, and the previously selected scenes are copied to the VCR in the specified order.
While editing, the R.A. Edit counter of the scene which is beging copied is shown with a blinking highlight.

3

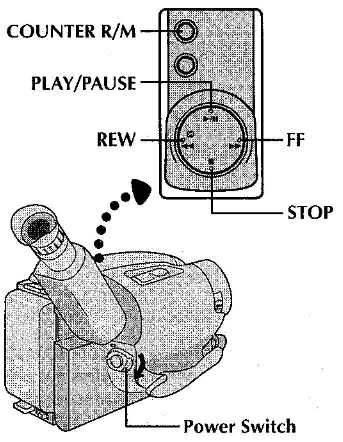
END AUTOMATIC EDITING

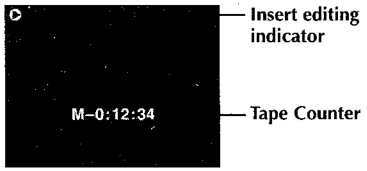
When all selected scenes have been copied, the camcorder and VCR enter the still or pause mode. Press **STOP** on both units. To make the R.A. Edit counter display disappear, press **ON/OFF**.

- When finished editing, be sure to disconnect the editing cable and the audio/video cable.

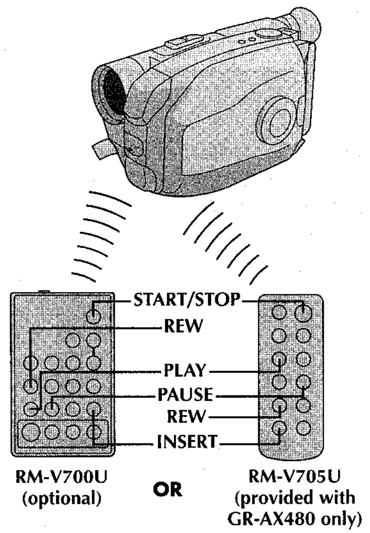
NOTES:

- *If you performed step* ***1*** 🄲 *on page 41 ("MAKE CONNECTIONS"), keep the remote control pointed at the VCR during editing.*
- *The on-screen display only appears while the camcorder searches for each scene.*
- *There may be noise at in- or out-points on the edited tape with certain VCRs.*





Viewfinder



Insert Editing

You can record a new scene into a previously recorded tape, replacing a section of the original recording with minimal picture distortion at the in- and out-points. The original audio remains unchanged.

NOTE:

Use the RM-V705U or RM-V700U remote control unit to perform this procedure.

1 SELECT MODE

Set the Power Switch to "PLAY".

2 FIND EDIT-OUT POINT

Play back the tape, locate the point and press **PAUSE** on the camcorder or the remote control.

3 RESET COUNTER

Press and hold **COUNTER R/M** for more than 1 second to reset the tape counter, then press again for less than 1 second and make sure "M" appears.

4 FIND EDIT-IN POINT

Press **REW** to go a little beyond the beginning of the scene you want to replace, press **PLAY** to view the recorded tape, and press **PAUSE** exactly at the point where the new scene should start.

5 ENGAGE INSERT EDITING MODE

Press and hold **INSERT**, and without releasing **INSERT**, press and release **PAUSE**. The Insert mode is engaged. When the scene the camcorder is aimed at appears on the screen, go to the next step.

6 BEGIN INSERT EDITING

Press **START/STOP**. When the counter reaches "0:00:00", editing stops automatically and the camcorder enters the Insert-Pause mode.

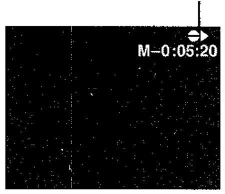
7 END INSERT EDITING

Press **STOP**.

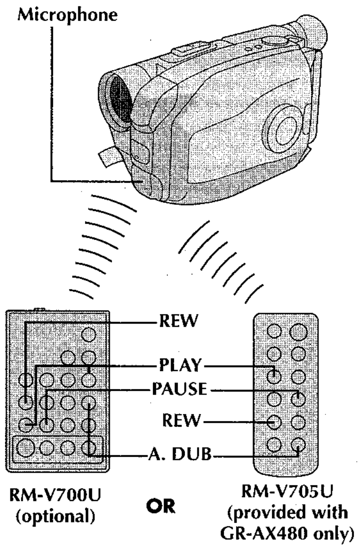
NOTES:

- *After step **5**, Retake (☞ pg. 15) can be performed.*
- *The tape may stop slightly before or after the designated end point, and noise bars may appear. Neither indicates a defect in the unit.*
- *Only video signal is recorded in the Insert Editing mode.*

Audio dubbing indicator



Viewfinder



Audio Dubbing

You can record a new soundtrack on a prerecorded tape (normal audio only).

Perform steps **1**, **2** and **3** of the Insert Editing procedure (☞ pg. 44) before continuing.

- The sound comes from the built-in microphone.

1 FIND EDIT-IN POINT

Press **REW** to go a little beyond the beginning of the scene onto which you want to dub new audio, press **PLAY** to view the recorded tape, then press **PAUSE** at exactly the point where dubbing should start.

2 ENGAGE AUDIO DUB-STANDBY MODE

Press and hold **A. DUB**, and without releasing **A. DUB**, press and release **PAUSE**.

3 BEGIN AUDIO DUBBING

Press **PLAY**. When the counter reaches "0:00:00", Audio Dubbing stops automatically and the camcorder enters the Audio Dub-Standby mode.

4 END AUDIO DUBBING

Press **STOP**.

NOTES:

- *Do not press **FF** or **REW** during Audio Dub-Standby, or the edit points will not be accurate.*
- *If the microphone is too close to the TV, or if the TV's volume is too high, whistling or howling may occur.*

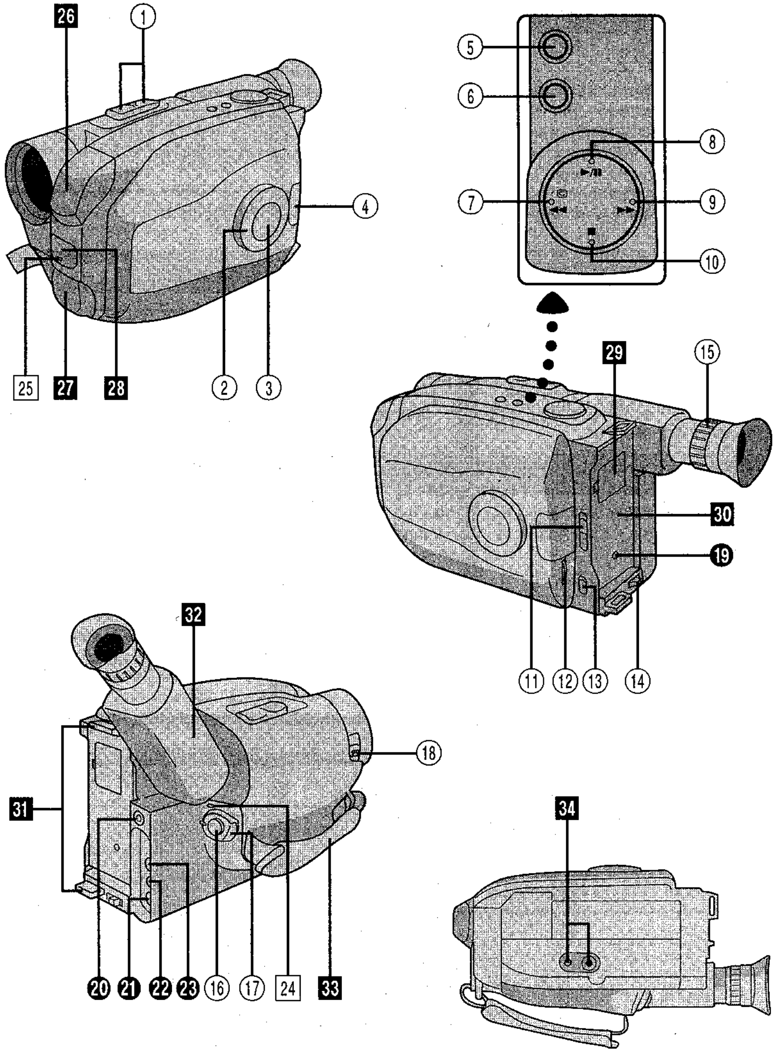
NOTES (for Insert Editing and Audio Dubbing):

- *Insert Editing and audio Dubbing may not work correctly if the tape contains blank segments, or if the recording speed was changed during the original recording.*
- *To edit/dub onto a tape, make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.*
- *Do not press **STOP** during Insert Editing or Audio Dubbing, or the edit points will not be accurate.*
- *During Insert Editing and Audio Dubbing, when Insert-Pause or Audio Dub-Standby is engaged, the counter may go slightly past "0:00:00". Recording, however, stops at exactly 0:00:00.*

SYMPTOM	POSSIBLE CAUSE(S)
POWER	
No power is supplied.	• The battery pack has not been attached correctly (☞ pg. 4). • The battery pack is not charged (☞ pg. 4). • The power supply has not been correctly connected (☞ pg. 5).
The power suddenly goes off and doesn't come back on by itself.	• The battery pack has completely discharged. • Remove the cassette and disconnect the power source, then after a few minutes, try turning the power back on. If it still doesn't come on, consult your nearest JVC dealer.
RECORDING	
Recording cannot be performed.	• Make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.
Recording does not start.	• The camcorder Power Switch has not been set to "CAMERA" (☞ pg. 12).
PLAYBACK	
The tape is running, but there's no playback picture.	• The TV has not been set to its VIDEO mode. • If A/V connection is used, the TV's VIDEO/TV Switch has not been set to VIDEO. • The RF unit has not been set to the correct channel.
Playback picture is blurred or interrupted.	• The video heads are dirty or worn out. Consult your nearest JVC dealer for head cleaning or replacement.
The counter indication is blurred during Still playback.	• This is normal.
TAPE TRANSPORT	
The tape stops during fast-forward or rewind.	• The Counter Memory Function has been activated (☞ pg. 34).
Rewinding or fast-forwarding cannot be performed.	• The tape is already fully wound on one reel or the other.

SYMPTOM	POSSIBLE CAUSE(S)
OTHER	
The tape won't eject.	• The battery pack is running low.
Some functions are not available.	• The Select Dial is set to "AUTO LOCK".
Vertical white lines appear when shooting a very bright object.	• This sometimes occurs when the contrast between the background and the object is great. It is not a defect of the camcorder.
Bright, crystal-shaped spots appear in the viewfinder.	• Sunlight is directly entering the lens. This is not a defect of the camcorder.
The viewfinder and the lens have become dirty (ex. fingerprints).	• Wipe them gently with soft cloth.
An error number (i.e. E03) appears.	• Turn the camcorder's power off, then disconnect the power source. After a few minutes, try turning the power on again. If the error number still appears in the viewfinder, consult your nearest JVC dealer.
The image is out of focus.	• The dioptre needs to be adjusted (☞ pg. 10). • The scene being shot is adversely affecting the operation of Auto Focus (☞ pg. 26).
The date and time displays disappear.	• If you remove the power source from the camcorder while the power is on, all settings and selections are erased. Make sure to turn the camcorder's power off before disconnecting the power source.
The wrong date and time are displayed/recorded.	• If you have not performed Date/Time Setting (☞ pg. 7), the date and time are not displayed/recorded correctly. Be sure that Date/Time setting is carried out.
Even though the Lens Cover is open, the Lens Cover Warning indicator blinks.	• The Lens Cover Warning indicator may blink when the camcorder is used in dark areas, regardless of the position of the Lens Cover.

The camcorder is a microcomputer-controlled device. External noise and interference (from a TV, a radio, etc.) might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC Power Adapter/Battery Charger, etc.) and clock battery; and then re-connect it and proceed as usual from the beginning.



Controls

① Power Zoom Button	☞ pg. 14
② Select Dial	☞ pg. 18
③ Multi-Function Control	
• EFFECT Button	☞ pg. 20
• WIDE Button	☞ pg. 20
• TITLE Button	☞ pg. 21
• SUPER LOLUX Button	☞ pg. 21
④ PUSH Button	☞ pg. 9
⑤ DATE/TIME Button	☞ pg. 17
COUNTER R/M Button	☞ pg. 34
⑥ 5SEC. REC [5-sec recording] Button	☞ pg. 15
⑦ REW Button	☞ pg. 32
RETAKE R [Quick Review] Button	☞ pg. 15
⑧ PLAY/PAUSE Button	☞ pg. 32
⑨ FF Button	☞ pg. 32
RETAKE F Button	☞ pg. 15
⑩ STOP Button	☞ pg. 32
⑪ EJECT Switch	☞ pg. 9
⑫ Function Navigator Dial [MENU Jog Dial]	☞ pg. 7
⑬ LIGHT OFF/AUTO/ON Switch (GR-AX480 only)	☞ pg. 16
⑭ BATT. [Battery] RELEASE Switch	☞ pg. 4
⑮ Dioptre Adjustment	☞ pg. 10
⑯ Recording Start/Stop Button	☞ pg. 12
⑰ Power Switch	☞ pg.12, 32
⑱ LENS COVER Switch	☞ pg. 12

Connectors

⑲ DC IN Jack	☞ pg. 5

The jacks ⑳ to ㉓ are located beneath the jack cover.

⑳ J terminal [JLIP (Joint Level Interface Protocol) Connector]
- Connect the editing cable when performing Random Assemble Editing (GR-AX480 only) (☞ pg. 40 – 43).
- It is used to connect the camcorder to a device such as a personal computer.
  For further detail consult your nearest JVC dealer.
- JLIP-controlled editing from camcorder to VCR is not possible if the VCR is not equipped with a J terminal.

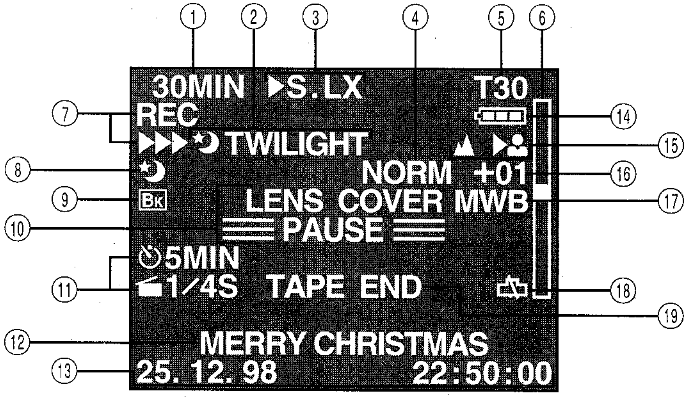
㉑ VIDEO OUT Connector	☞ pg. 36
㉒ RF DC OUT Connector	☞ pg. 36
㉓ AUDIO OUT Connector	☞ pg. 36

Indicators

[24] Power Indicator	☞ pg. 12
[25] Tally Lamp (GR-AX480 only)	☞ pg. 12

Other Parts

26 Video Light (GR-AX480 only)	☞ pg. 16
27 Microphone	☞ pg. 45
28 • Camera sensor Be careful not to cover this area; built-in here is the sensor necessary for shooting. • Remote Sensor (GR-AX480 only)	☞ pg. 39
29 Clock Battery Compartment	☞ pg. 6
30 Battery Pack Mount	☞ pg. 4
31 Shoulder Strap Eyelets	☞ pg. 11
32 Electronic Viewfinder	☞ pg. 10
33 Grip Strap	☞ pg. 10
34 Tripod Mounting Socket	☞ pg. 11



Viewfinder Indications

① Cassette Warning/ Tape Remaining Time .... ☞ pg. 13
When no cassette is inserted: the cassette (▭) warning blinks.
When Erase Protection tab is not in the position that allows recording: the cassette (▭) warning lights. Otherwise, the tape remaining time is displayed and the **tape remaining time warning** blinks when the tape is about to reach its end.
When the Power Switch is set to "PLAY" and a tape is loaded: the cassette (▭) mark is displayed regardless of the Erase Protection tab's position.

②, ⑧ Programme AE Indicator .... ☞ pg. 18
Displayed at ② for approx. 1 second when the Select Dial is switched from one position to another. Then only the indicator remains at ⑧.

②, ⑨ Fade-Standby Indicator .... ☞ pg. 20
Displayed at ② for approx. 2 seconds when the Fader is engaged by pressing the EFFECT button. Then only the indicator remains at ⑨.

③ Multi-Function Control Indication ..... ☞ pg. 20
Displayed when any of the buttons located on the Multi-Function Control is pressed. The indication disappears within approx. 2 seconds.

④ Super LoLux Indicator .... ☞ pg. 21

⑤ Tape Length Indicator .... ☞ pg. 8

⑥ Zoom Indicator Bar .... ☞ pg. 14

⑦ Recording Indicator .... ☞ pg. 12

⑩ •Record-Standby Mode Indicator ...... ☞ pg. 12
• Lens Cover Warning:
LENS COVER .... ☞ pg. 13

⑪ Interval Timer/Recording Time/ 5Sec. Rec Mode Indicator .... ☞ pg. 15,30

⑫ Instant Title Display .... ☞ pg. 21

⑬ Date/Time/Character Display .... ☞ pg. 17

⑭ Battery Pack Remaining Power Indicator
Changes as follows according to the battery pack's remaining power level:
"▮▮▮→▮▮▯→▮▯▯→▯▯▯". When the power is almost gone, the indicator "▯▯▯" blinks (**battery power warning**), then the unit shuts off. Replace the battery pack with a fully charged one.
Note: The symbol containing 3 darkened squares — ▮▮▮ — does not necessarily mean that the battery pack is fully charged.

⑮ Focus Indicator .... ☞ pg. 27

⑯ Exposure Control Level Counter .... ☞ pg. 28

⑰ White Balance Mode Indicator .... ☞ pg. 29

⑱ Clock Battery Warning
Blinks for approx. 10 seconds when the power is turned on. This display also blinks when the clock (lithium) battery is either not installed or has discharged. Install or replace the old battery with a new one (☞ pg. 6).

⑲ • Tape End Display: TAPE END .... ☞ pg. 13
Appears when the end of the tape is reached during playback, recording or fast-forward.
• Condensation Warning: 💧
When this indication appears, all functions except tape eject and power on/off are disabled. Turn the unit off (without removing the power source) for a few hours, and when you turn it on again the indication should disappear.

CAUTIONS

General Battery Precautions

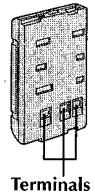
- When the C-P6U or C-P7U (cassette adapter) is not functioning even when correctly operated, the battery is exhausted. Replace it with a fresh one.
- Use only the following battery:

C-P6U or C-P7U .... R6 (AA) size

Please make note of the following rules for battery use. When misused, battery can leak or explode.

1. Refer to the C-P6U/C-P7U instructions when replacing the battery.
2. **Do not** expose the battery to excessive heat as it can leak or explode.
3. **Do not** dispose of battery in a fire.
4. Remove battery from the unit if it is to be stored for an extended period to avoid battery leakage which can cause malfunctions.

Battery Packs


Terminals

The supplied battery pack is a nickel-cadmium battery. Before using the supplied battery pack or an optional battery pack, be sure to read the following cautions:

1. **To avoid hazard . . .**
   .... **do not** burn.
   .... **do not** short-circuit the terminals.
   .... **do not** modify or disassemble.
   .... use only specified chargers.
2. **To prevent damage and prolong service life . . .**
   .... **do not** subject to unnecessary shock.
   .... avoid repeated charging without fully discharging.
   .... charge in an environment where temperatures are within the tolerances shown in the chart below. This is a chemical reaction type battery—cooler temperatures impede chemical reaction, while warmer temperatures can prevent complete charging.
   .... store in a cool, dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
   .... avoid prolonged uncharged storage.
   .... remove from charger or powered unit when not in use, as some machines use current even when switched off.

NOTES:

- *It is normal for the battery pack to be warm after charging, or after use.*

Temperature Range Specifications

Charging	10°C to 35°C
Operation	0°C to 40°C
Storage	–10°C to 30°C

- *Recharging time is based on room temperature of 20°C.*
- *The lower the temperature, the longer recharging takes.*

Cassettes

To properly use and store your cassettes, be sure to read the following cautions:

1. **During use . . .**
   .... make sure the cassette bears the VHS-C mark.
   .... be aware that recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
   .... make sure the cassette is positioned properly when inserting.
   .... do not load and unload the cassette repeatedly without allowing the tape to run at all. This slackens the tape and can result in damage.
   .... do not open the front tape cover. This exposes the tape to fingerprints and dust.
2. **Store cassettes . . .**
   .... away from heaters or other heat sources.
   .... out of direct sunlight.
   .... where they won't be subject to unnecessary shock or vibration.
   .... where they won't be exposed to strong magnetic fields (such as those generated by motors, transformers or magnets).
   .... vertically, in their original cases.

Main Unit

1. **For safety, DO NOT . . .**
   .... open the camcorder's chassis.
   .... disassemble or modify the unit.
   .... short-circuit the terminals of the battery pack. Keep it away from metallic objects when not in use.
   .... allow inflammables, water or metallic objects to enter the unit.
   .... remove the battery pack or disconnect the power supply while the power is on.
   .... leave the battery pack attached when the camcorder is not in use.
2. **Avoid using the unit . . .**
   .... in places subject to excessive humidity or dust.
   .... in places subject to soot or steam such as near a cooking stove.
   .... in places subject to excessive shock or vibration.
   .... near a television set.
   .... near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
   .... in places subject to extremely high (over 40°C) or extremely low (under 0°C) temperatures.

3. **DO NOT leave the unit . . .**
   .... in places of over 50°C.
   .... in places where humidity is extremely low. (below 35%) or extremely high (above 80%).
   .... in direct sunlight.
   .... in a closed car in summer.
   .... near a heater.
4. **To protect the unit, DO NOT . . .**
   .... allow it to become wet.
   .... drop the unit or strike it against hard objects.
   .... subject it to shock or excessive vibration during transportation.
   .... keep the lens directed at extremely bright objects for long periods.
   .... direct the eyepiece of the viewfinder at the sun.
   .... carry it by holding the viewfinder. Be sure to hold the main unit with both hands or use the grip.
   .... swing it excessively when using the shoulder strap.

About moisture condensation . . .

- You may have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass' outer surface. This same phenomenon occurs on the head drum of a camcorder when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the camcorder itself.

Serious malfunctioning

If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

For Your Maintenance

1. **After Use**
   ① Set the power switch to "POWER OFF" to turn off the camcorder.
   ② Slide EJECT to open the cassette holder, then remove the cassette.
   ③ Close and lock the cassette holder by pressing PUSH.
   ④ Slide BATT. RELEASE to remove the battery pack.
   ⑤ Slide the LENS COVER open/close switch to close the lens cover.
2. **Cleaning The Camcorder**
   ① **CLEAN EXTERIOR**
   Wipe gently with a soft cloth.
   ② **CLEAN LENS**
   Blow it with a blower brush, then wipe gently with lens cleaning paper.
   ③ **REMOVE EYEPIECE**
   Turn the eyepiece counterclockwise and pull it out.
   ④ **CLEAN VIEWFINDER**
   Remove dust using a blower brush.
   ⑤ **RE-ATTACH EYEPIECE**
   Align the marks, re-attach the eyepiece and turn it clockwise.

NOTES:

- *Avoid using strong cleaning agents such as benzine or alcohol.*
- *Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.*
- *Mould may form if the lens is left dirty.*

SPECIFICATIONS

GENERAL

Format	: VHS PAL standard
Power source	: DC 6V ⎓
Power consumption	
•GR-AX480 light on	: 7.9 W
•GR-AX480 light off / GR-AX280	: 5.0 W
•GR-AX380	: 5.1 W
Signal system	: PAL-type
Video recording system	
Luminance	: FM recording
Colour	: Converted sub-carrier direct recording Conforms to VHS standard
Cassette	: VHS C cassette
Tape speed	: 23.39 mm/sec
Recording time (max.)	: 60 minutes (with EC-60 cassette)
Operating temperature	: 0°C to +40°C
Operating humidity	: 35% to 80%
Storage temperature	: –20°C to +50°C
Weight	
•GR-AX480	: Approx. 800 g
•GR-AX380	: Approx. 770 g
•GR-AX280	: Approx. 790 g
Dimensions (Including viewfinder)	
•GR-AX480/AX280	: 113 (W) x 117 (H) x 242 (D) mm
•GR-AX380	: 113 (W) x 117 (H) x 222 (D) mm

CAMERA

Pick up	: 1/4" format CCD
Lens	: F1.6, f = 3.8 to 83.6 mm, 22:1 power zoom lens with auto iris and macro control, filter diameter 46 mm
Viewfinder	: Electronic viewfinder with • 0.5" B/W CRT (GR-AX480/AX280) • 0.55" colour LCD (GR-AX380)
White balance adjustment	: Auto/Manual adjustment

VIDEO

Output	: 1 Vp-p, 75 ohms, unbalanced (via VIDEO OUT connector)

AUDIO

Output	: –8 dBs, 1 k-ohm (via AUDIO OUT connector)

AC POWER ADAPTER/BATTERY CHARGER (AA-V15EG)

Power requirement	: AC 110 V to 240 V∿, 50/60 Hz
Power consumption	: 23 W
Output	
Charge	: DC 8.5 V ⎓, 1.3 A
VTR	: DC 6.3 V ⎓, 1.8 A
Charging system	: Constant current, peak detection, timer controlled
Dimensions	: 140 (W) x 42 (H) x 68 (D) mm
Weight	: Approx. 300 g

CASSETTE ADAPTER (C-P7U)

Dimensions	: 188 (W) x 25 (H) x 104 (D) mm
Weight	: Approx. 240 g
Accessory	: "R6 (AA)"-size battery x 1

Provided Accessories .... ☞ pg. 3

Optional Accessories

- **Battery Packs BN-V12U, BN-V22U, BN-V25U**
- **Car Battery Charger BH-V3E**
- **RF Unit RF-V5E**
- **Compact VHS-C Cassettes EC-60/45/30**
- **Active Carrying Bag CB-V7U**
- **Remote Control Unit RM-V700U**

Some acccessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

E. & O. E. Design and specifications subject to change without notice.

SECTION 1
DISASSEMBLY

1.1 SERVICE CAUTIONS

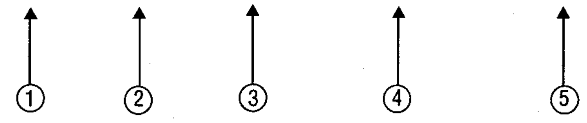
1.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. In general, chip parts such as resistor, shorting jumpers (0-ohm resistor), ceramic capacitors, diodes, etc. can not be reused after they were once removed.
4. When installing parts, be careful not to do with other parts as well as not to damage others.
5. When removing ICs, be careful not to damage circuit patterns.

1.1.2 How to read the disassembly and assembly

(For Cabinet Parts)

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 4(L1), 2(L2),(L3) PUSH BUTTON *CONNECTOR Ⓐ	<NOTE 1> <NOTE 2>
②	REAR COVER ASSEMBLY	C2	7(S2), (S3), (L4) JACK COVER/CAP (LITHIUM) /SWITCH (EJECT/DC LIGHT)	<NOTE 3>
③	TOP COVER ASSEMBLY	C3	2(S2),2(L5), 3(L6), 2(L7)	–
④	UPPER CASE	C4	2(S2), (L8)	–



① : Order of steps in Procedure
When reassembling, preform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

② : Part to be removed or installed.

③ : Fig. No. showing Procedure or Part Location.
C = Cabinet
CA = Camera
D = Deck

④ : Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.
7(S2) = 7 Screws (S2)

⑤ : Adjustment information for installation.

1.1.3 Connection of the wires

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

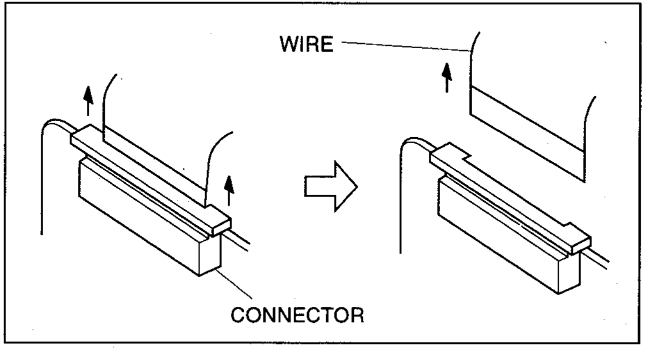


Fig. 1-1-1

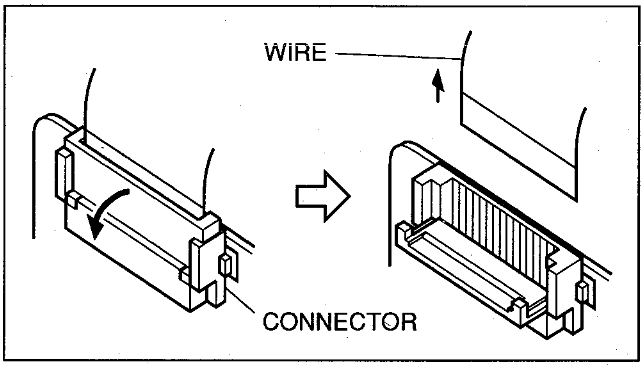


Fig. 1-1-2

1.1.4 Main screws to deal with disassembly/assembly

Table 1-1-1 lists screws by their symbols correspond to those shown in figures of this section "Disassembly".

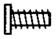
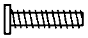
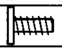
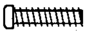
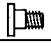
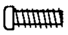
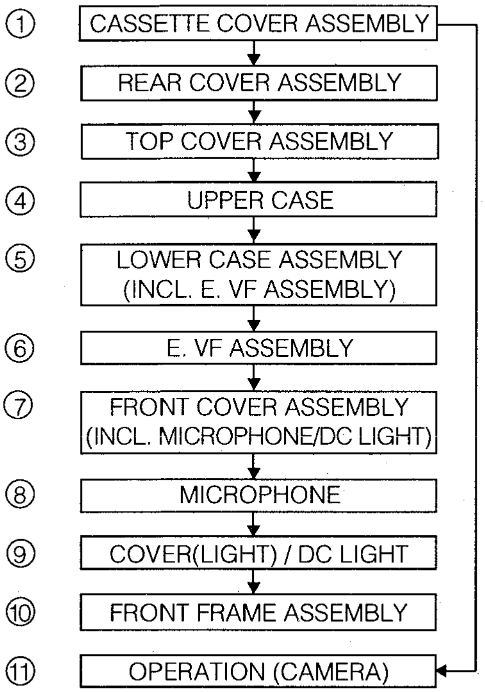
SYMBOL	SHAPE	PARTS NO.
(S1)		QYSLSP2030D
(S2)		QYSLSF2055D
(S3)		QYSLSF20A0D
(S4)		SPSH1725M
(S5)		LY30018-009A
(S6)		YQ43762-4
(S7)		SPSN2090Z
(S8)		QYSLSF1750D
(S9)		QYSPSTU1750M
(S10)		LY30019-010A
(S11)		QYSPSTU1725M
(S12)		QYSPSPU1760Z
(S13)		YQ44457-3

Table 1-1-1

1.2 DISASSEMBLY/ASSEMBLY OF CABINET PARTS

1.2.1 Disassembly flow chart

This flowchart indicates the disassembly step for the cabinet parts and board assembly in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.

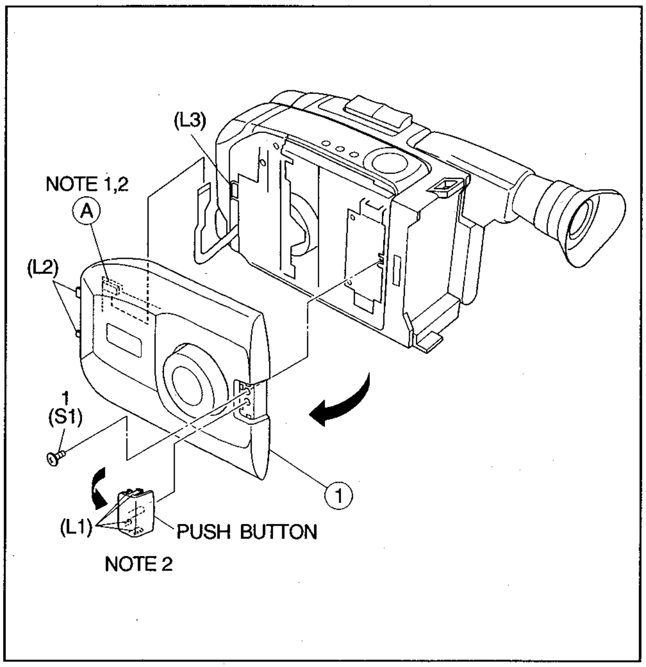


① CASSETTE COVER ASSEMBLY
② REAR COVER ASSEMBLY
③ TOP COVER ASSEMBLY
④ UPPER CASE
⑤ LOWER CASE ASSEMBLY (INCL. E. VF ASSEMBLY)
⑥ E. VF ASSEMBLY
⑦ FRONT COVER ASSEMBLY (INCL. MICROPHONE/DC LIGHT)
⑧ MICROPHONE
⑨ COVER(LIGHT) / DC LIGHT
⑩ FRONT FRAME ASSEMBLY
⑪ OPERATION (CAMERA)

1.2.2 Disassembly method

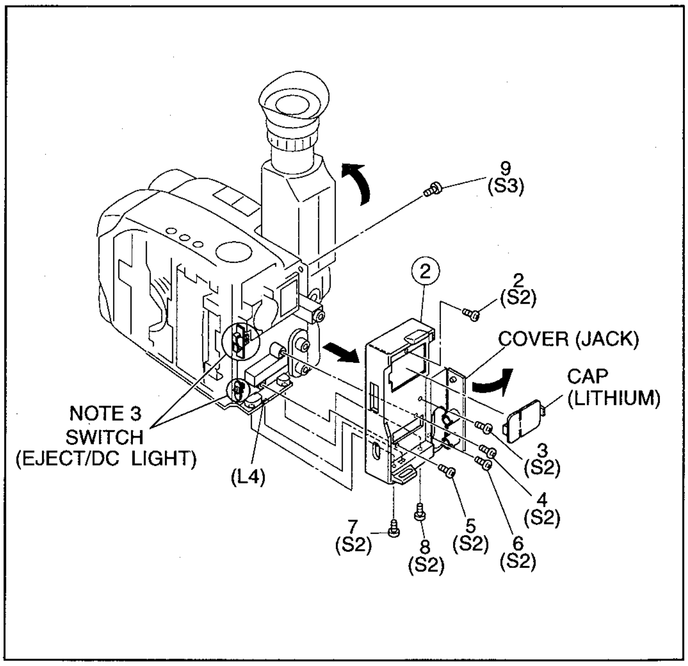
STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 4(L1), 2(L2),(L3) PUSH BUTTON *CONNECTOR Ⓐ	<NOTE 1> <NOTE 2>
②	REAR COVER ASSEMBLY	C2	7(S2), (S3), (L4) COVER(JACK) /CAP (LITHIUM) /SWITCH (EJECT/DC LIGHT)	<NOTE 3>
③	TOP COVER ASSEMBLY	C3	2(S2),2(L5), 3(L6), 2(L7)	–
④	UPPER CASE	C4	2(S2), (L8)	–
⑤	LOWER CASE ASSEMBLY (INCL. MIC/DC LIGHT)	C5	6(S2), (L9), (L10), (L11),2(L12) *CONNECTOR Ⓑ GRIP BELT	<NOTE 1> <NOTE 4>
⑥	E. VF ASSEMBLY	C6	(S2), 2(L13)	<NOTE 5>
⑦	FRONT COVER ASSEMBLY (INCL. MIC/DC LIGHT)	C7	(S2), (L14), (L15) *CONNECTOR Ⓒ O RING	<NOTE 1> <NOTE 6>
⑧	MICROPHONE	C7	(S2)	–
⑨	COVER (LIGHT)	C7	2(L16)	<GR-AX280/AX380>
	DC LIGHT	C7	2(L16)	<GR-AX480>
⑩	FRONT FRAME ASSEMBLY	C8	2(S4)	–
⑪	OPERATION (CAMERA)	C9	4(S2)	–

List of Abbreviations:
7(S2)=7 Screws (S2)
4(L1)=4 Locking Tabs (L1)



(L3)
NOTE 1,2
Ⓐ
(L2)
1
(S1)
①
(L1)
PUSH BUTTON
NOTE 2

Fig. C1



9
(S3)
②
2
(S2)
COVER (JACK)
CAP
(LITHIUM)
NOTE 3
SWITCH
(EJECT/DC LIGHT)
(L4)
3
(S2)
4
(S2)
7
(S2)
8
(S2)
5
(S2)
6
(S2)

Fig. C2

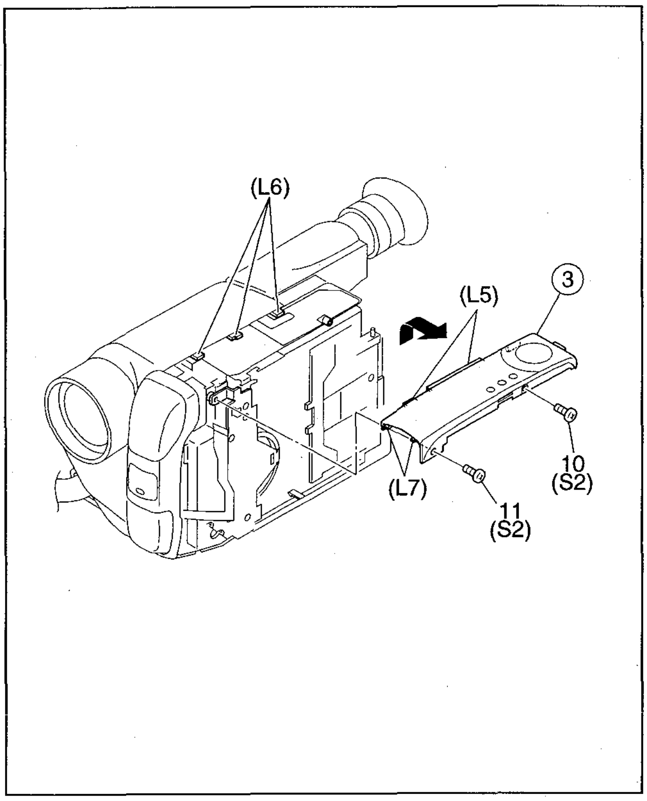

(L6)
(L5)
3
(L7)
10
(S2)
11
(S2)

Fig. C3

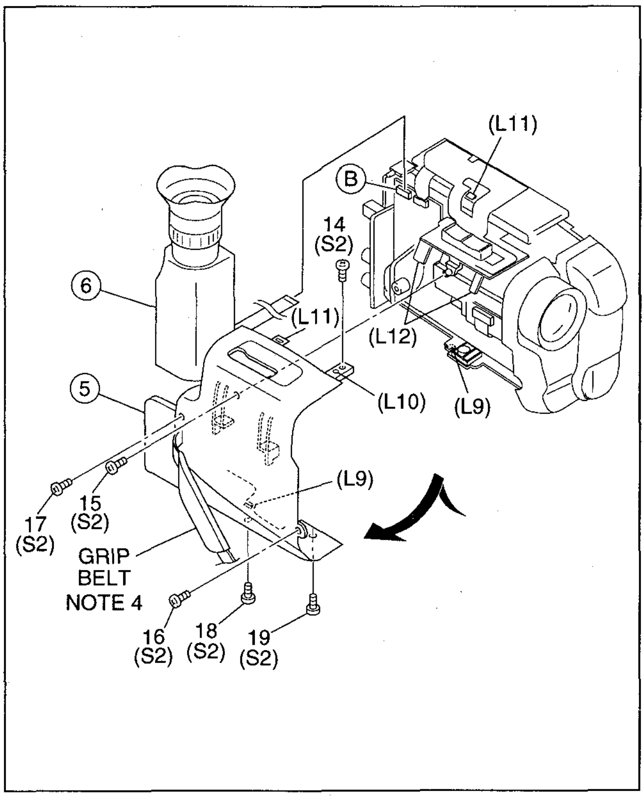

(L11)
B
14
(S2)
6
(L11)
(L12)
5
(L10)
(L9)
(L9)
17
(S2)
15
(S2)
GRIP
BELT
NOTE 4
16
(S2)
18
(S2)
19
(S2)

Fig. C5

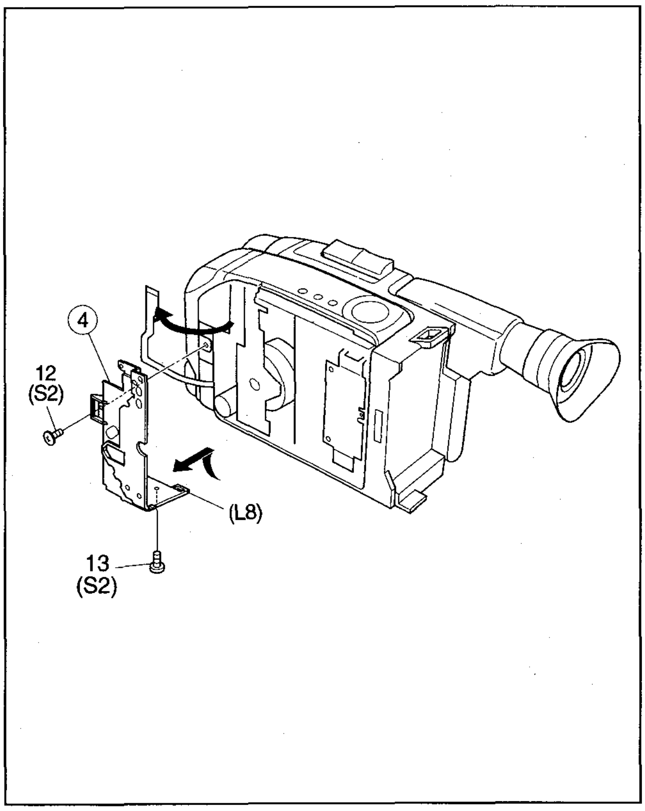

4
12
(S2)
(L8)
13
(S2)

Fig. C4

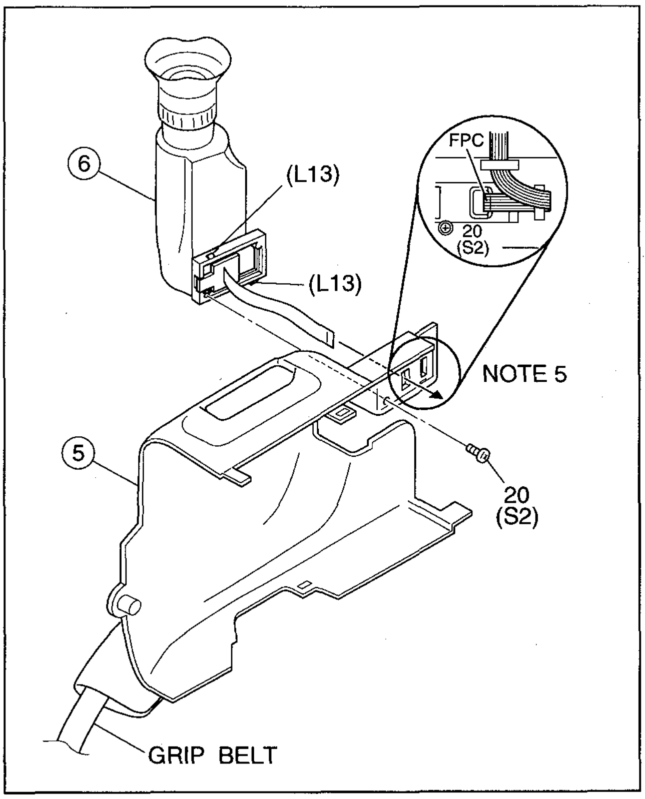

FPC
6
(L13)
20
(S2)
(L13)
NOTE 5
5
20
(S2)
GRIP BELT

Fig. C6

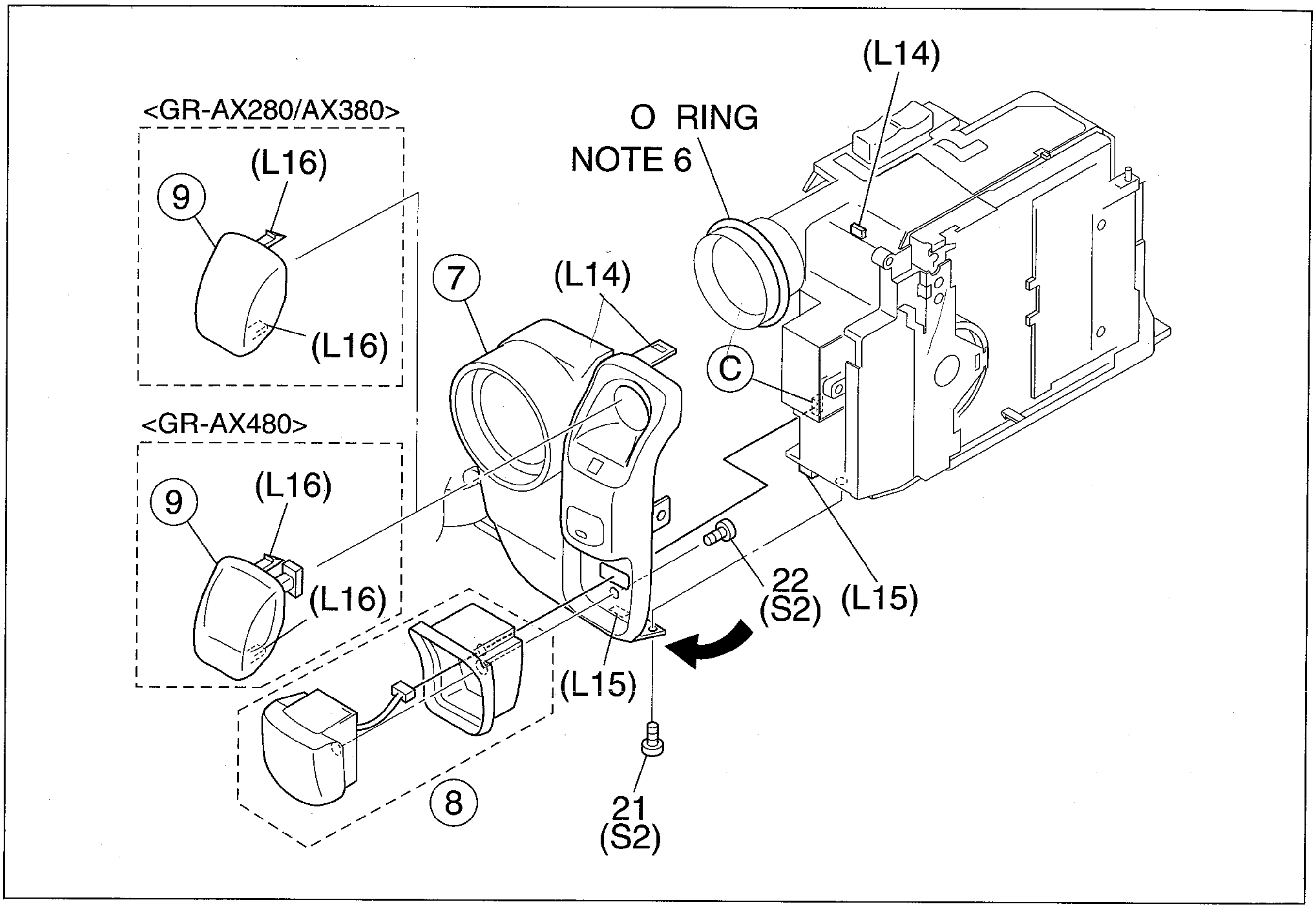

(L14)
O RING
NOTE 6
<GR-AX280/AX380>
9
(L16)
(L16)
7
(L14)
C
<GR-AX480>
9
(L16)
(L16)
22
(S2)
(L15)
(L15)
8
21
(S2)

Fig. C7

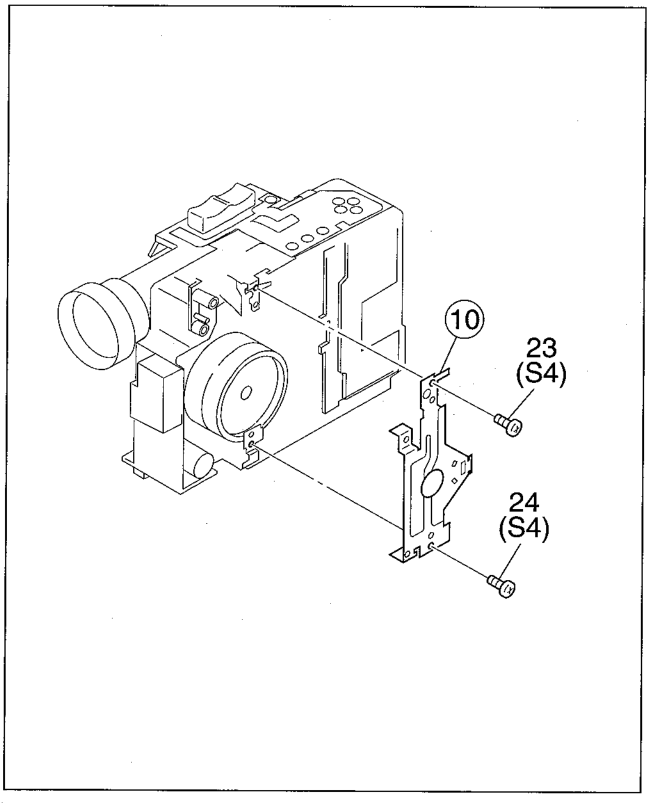

10
23
(S4)
24
(S4)

Fig. C8

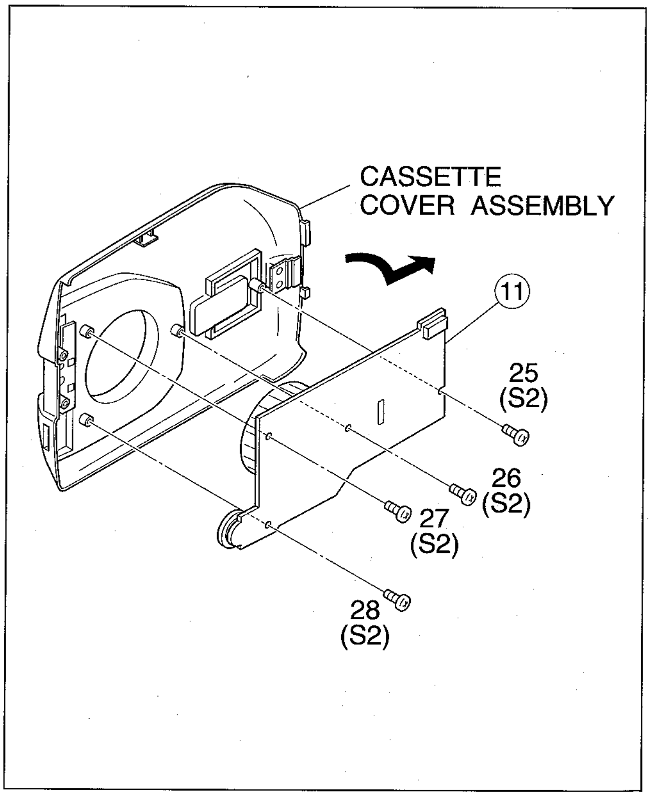

CASSETTE
COVER ASSEMBLY
11
25
(S2)
26
(S2)
27
(S2)
28
(S2)

Fig. C9

Reference Notes:
<NOTE 1>
Destination of connectors

Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*

⬌ : Board to Board connector
⇔ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector
Ⓐ	10	OPERATION (CAMERA) ⇔ MAIN1 CN16
Ⓑ	10	E. VF (B/W) ⇔ MAIN1 CN12 <GR-AX280/AX480>
	14	E. VF (COLOR) ⇔ MAIN1 CN12 <GR-AX380>
Ⓒ	5	MIC ↔ SENSOR CN8

<NOTE 2>
First remove the push button, then remove one SCREW (1). Next disconnect connector Ⓐ, then remove the cassette cover assembly ①.

<NOTE 3>
When removing the rear cover assembly, pay careful attention to the knob of the switch (EJECT/*DC LIGHT) to get it neither damaged nor lost.
* : ONLY USE FOR GR-AX480

<NOTE 4>
First remove the grip belt, then remove the lower case assembly ⑤.

<NOTE 5>
When removing the E. VF assembly, first disengage the FPC from the hook to make it loose. At that time, be careful not to break the wiring of the FPC.

<NOTE 6>
When removing the front cover assembly, pay careful attention to the O-ring not to lose it.
If the O-ring comes off, set it in the groove outside the optical lens.

1.3 DISASSEMBLY/ASSEMBLY OF CAMERA PARTS

1.3.1 Disassembly flow chart

This flowchart indicates the disassembly step for the CAMERA parts and board assembly in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.

① OPE (DECK) BOARD ASSEMBLY
↓
② OP BLOCK ASSEMBLY
↓
③ CCD IMAGE SENSOR

*Refer to section 1.4

1.3.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	OPE (DECK) BOARD ASSEMBLY	CA1	*CONNECTOR Ⓓ 3(S2), 2(L1), 2(L2), (L3)	<NOTE 1>
②	OP BLOCK ASSEMBLY	CA1	*CONNECTOR Ⓔ Ⓕ 2(S5), 2(S6)	<NOTE 1> <NOTE 2>

List of Abbreviations:
3(S2) = 3 Screws (S2)
2(L1) = 2 Locking Tabs (L1)

Reference Notes:
<NOTE 1>
Destination of connectors

Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*

⬌ : Board to Board connector
⇔ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector
Ⓓ	12	MAIN1 CN13 ⇔ OPERATION (DECK)
Ⓔ	22	OP BLOCK ⇔ MAIN1 CN15
Ⓕ	14	OP BLOCK ⬌ CCD CN5201

<NOTE 2>
Move the CCD board in the direction of the rear side. At that time, pay careful attention to pins (connector Ⓕ) of the CCD image sensor so as not to damage them.

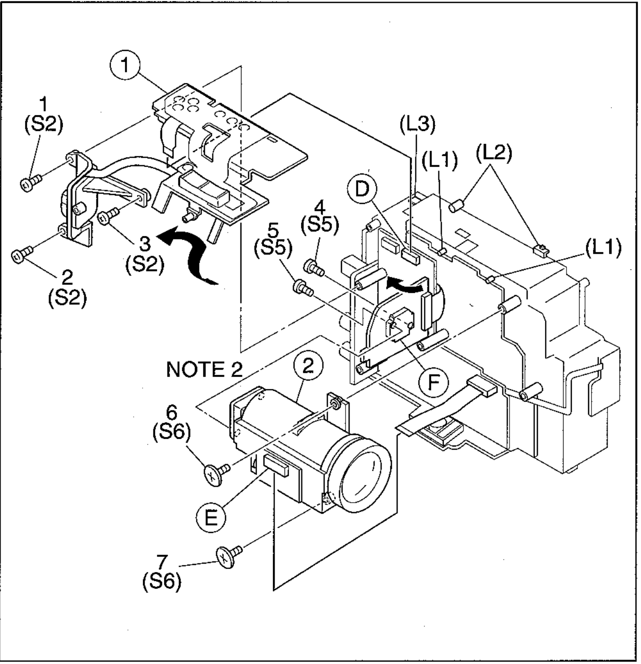


Fig. CA1

1.4 REPLACEMENT OF CCD IMAGE SENSOR

Notes:

- *Pay the most careful attention to the transparent glass and optical LPF of the CCD image sensor so a not the soil and damage them. If something is soiled with finger-prints, etc., gently clean it with silicon-processed paper/cloth or chamois.*
- *When the CCD image sensor is shipped from the factory, there are protection seals applied onto the transparent glass. Leave the protector as it is, and take it off just before assembling the CCD image sensor to the OP block.*

1.4.1 Removal of CCD image sensor

1. Remove two screws (1, 2) securing the CCD base, and disassemble the CCD spacer, the optical LPF, spacer rubber.

1.4.2 Installation of new CCD image sensor

1. Remove the protection seal from a new CCD image sensor. Next, put the spacer rubber, optical LPF, CCD spacer on the CCD image sensor as they are piled up in this order. At that time, make sure of orientation of each item refering to the following table (see Fig. 1-4-1).

Part Name	Orientation
CCD image sensor	Mark is on the right viewed as indicated by the arrow ⓐ.
Spacer rubber	IC side is horizontal.
Optical LPF	Marks are on the left and bottom viewed as indicated by the arrowⓐ.

2. Fix the CCD base to OP block with the two screws (1, 2). At that time, be careful of the orientation.
3. After completion of all P.C. boards to the camera section, observe the monitor to confirm no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallel, horizontality and centering are correct.

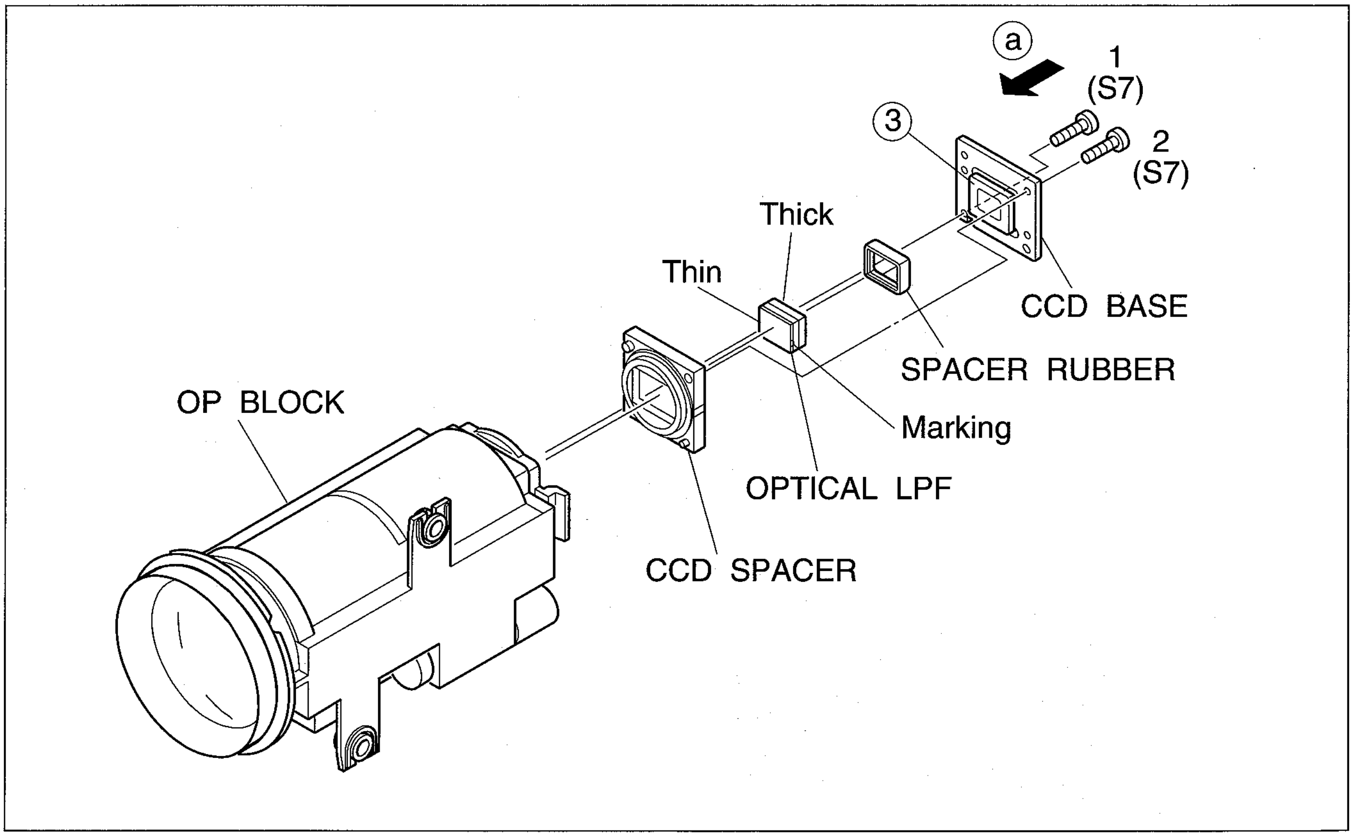
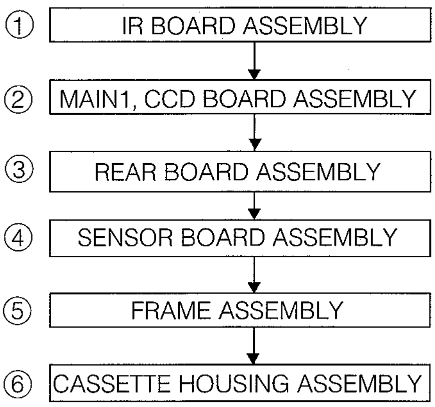


Fig. 1-4-1

1.5 DISASSEMBLY/ASSEMBLY OF DECK PARTS

1.5.1 Disassembly flow chart

This flowchart indicates the disassembly step for the DECK parts and board assembly in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.

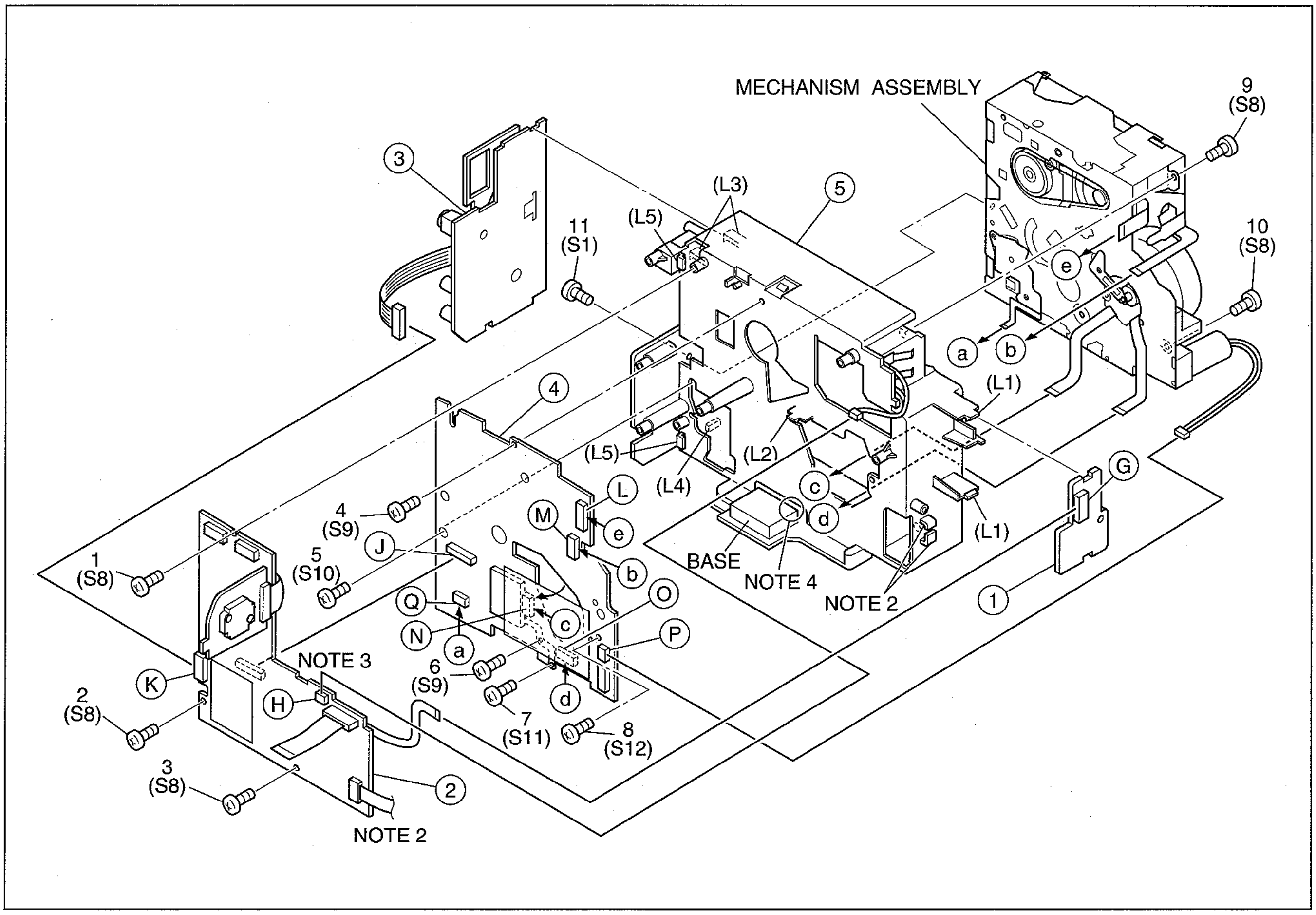


① IR BOARD ASSEMBLY
② MAIN1, CCD BOARD ASSEMBLY
③ REAR BOARD ASSEMBLY
④ SENSOR BOARD ASSEMBLY
⑤ FRAME ASSEMBLY
⑥ CASSETTE HOUSING ASSEMBLY

1.5.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	*REMOVAL*	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	IR BOARD ASSEMBLY	D1	2(L1) *CONNECTOR Ⓖ	<NOTE 1>
②	MAIN1, CCD BOARD ASSEMBLY	D1	3(S8), (L2) *CONNECTOR Ⓗ, Ⓙ, Ⓚ	<NOTE 1> <NOTE 2> <NOTE 3>
③	REAR BOARD ASSEMBLY	D1	2(L3), (L4)	–
④	SENSOR BOARD ASSEMBLY	D1	2(S9), (S10),(S11), (S12) 2(L5) *CONNECTOR Ⓛ, Ⓜ, Ⓝ Ⓞ, Ⓟ, Ⓠ	<NOTE 1> <NOTE 4>
⑤	FRAME ASSEMBLY	D1	2(S8),(S1)	–
⑥	CASSETTE HOUSING ASSEMBLY	D2	4(S13)	–

List of Abbreviations:
3(S8) = 3 Screws (S8)
2(L1) = 2 Locking Tabs (L1)



MECHANISM ASSEMBLY
9 (S8)
③
(L3)
⑤
11 (S1)
(L5)
10 (S8)
e
a
b
(L1)
④
(L5)
(L4)
(L2)
c
d
Ⓛ
Ⓜ
e
Ⓖ
4 (S9)
Ⓙ
5 (S10)
b
BASE
NOTE 4
NOTE 2
(L1)
1 (S8)
Ⓠ
c
Ⓞ
①
Ⓝ
a
Ⓟ
NOTE 3
6 (S9)
Ⓚ
Ⓗ
d
2 (S8)
7 (S11)
8 (S12)
3 (S8)
②
NOTE 2

Fig. D1

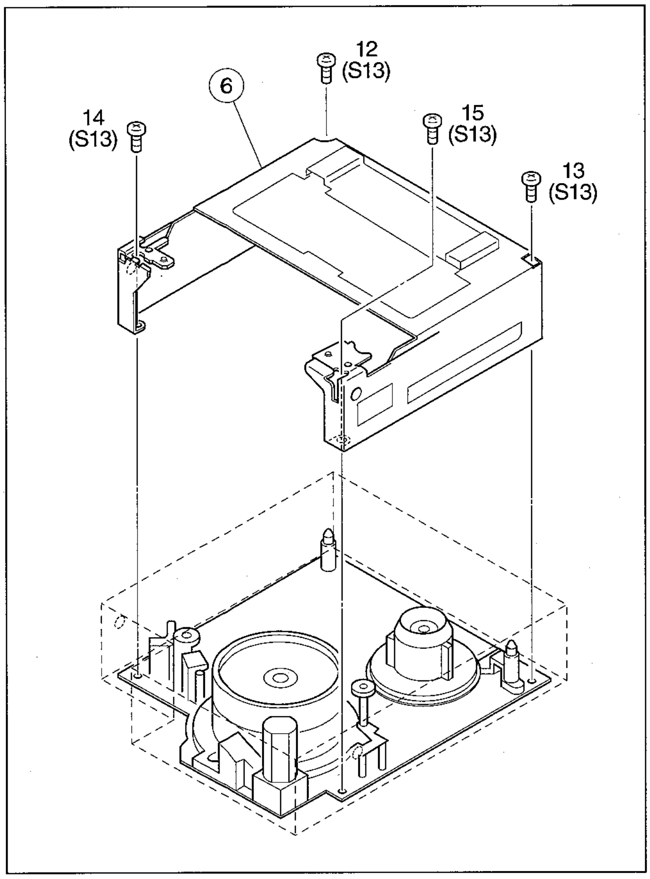


Fig. D2

Reference Notes:
<NOTE 1>
Destination of connectors

Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*

⟷ : Board to Board connector
⇔ : Flat wire
↔ : Wire

Connector	No. of Pins	Connector
Ⓖ	7	MAIN1 CN23 ⇔ IR CN1
Ⓗ	2	MAIN1 CN14 ↔ DC LIGHT
Ⓙ	60	MAIN1 CN21 ⟷ SENSOR CN6
Ⓚ	13	MAIN1 CN11 ↔ REAR CN31
Ⓛ	18	SENSOR CN3 ⇔ CAPSTAN MOTOR
Ⓜ	11	SENSOR CN7 ⇔ A/C HEAD
Ⓝ	11	SENSOR CN5 ⇔ VIDEO/FLY. E HEAD
Ⓞ	10	SENSOR CN1 ⇔ DRUM MOTOR
Ⓟ	2	SENSOR CN4 ↔ LOADING MOTOR
Ⓠ	6	SENSOR CN2 ⇔ ROTARY ENCODER

<NOTE 2>
When removing the MAIN1 board assembly, first disengage the FPC from the hook to make it loose. At that time, be careful not to break the wiring of the FPC.

<NOTE 3>
Connector Ⓗ (only use for GR-AX480.)

<NOTE 4>
The SENSOR board is set between the frame assembly and the base.
For removing the SENSOR board, remove the base in advance, or remove L5 first and then remove the board while getting it free from hindrance of other parts.

1.6 TO TAKE OUT CASSETTE TAPE

In the event that the set enters the emergency mode as it is loaded with a cassette tape and the cassette tape cannot be ejected with the EJECT button, manually, take it out of the set according to the following procedure.

Note: *If the mechanism comes into the unloading mode as the cassette tape is not held by hand, it results in tape damage.*

1. Disconnect the set from the power source.
2. Remove the cassette cover assembly, rear cover assembly and top cover assembly. (See Fig. C1, C2 and C3 page 1-1, 2 and 3)
3. Connect a jumper wire to each pole of the loading motor as shown by the magnified view ⓑ (Fig. 1-6-1)
4. While holding down the cassette housing by hand, connect the jumper wires to a battery to run the mechanism to the EJECT position four unloading. If this unloading operation is performed as the cassette housing is not held down by hand, the front lid of the cassette may damage the tape when it is ejected.
5. For taking in the slack of the tape, run the mechanism to the EJECT position as the front lid of the cassette is left open, and turn the take-up reel in the forward direction to wind up the tape. After confirming that the tape has completely been wound up and the supply reel is idling, take the cassette tape out of the cassette housing.

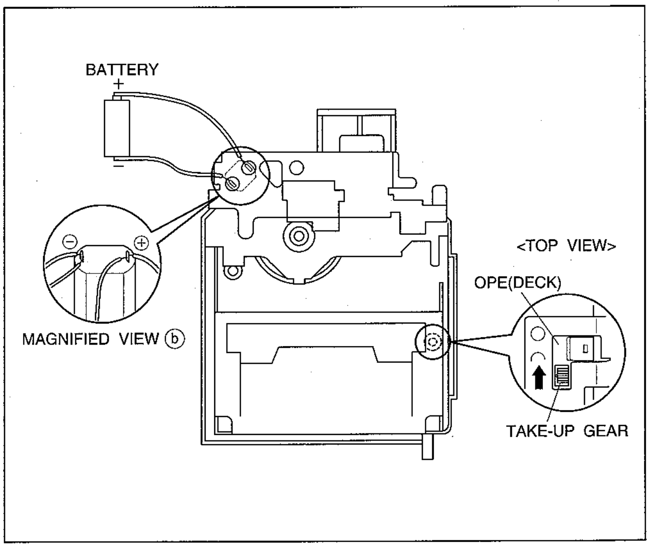


Fig. 1-6-1

1.7 EXTENSION CABLE CONNECTION

Connector	Pins	Connection			Part Number
①	60	MAIN1 CN21	⟷	SENSOR CN6	YTU94112A-60
②	22	MAIN1 CN15	⟷	OP BLOCK	YTU94074-22 YTU94077-22
③	7	MAIN1 CN23	⟷	IR CN1	YTU94074-7 YTU94077-7
④	10	MAIN1 CN12	⟷	E. VF (B/W)	YTU94074-10 YTU94077-10
	14	MAIN1 CN12	⟷	E. VF (COLOR)	YTU94074-14 YTU94077-14
⑤	12	MAIN1 CN13	⟷	OPERATION (DECK)	YTU94074-12 YTU94077-12
⑥	5	SENSOR CN8	⟷	MICROPHONE	YUJ40095A-5

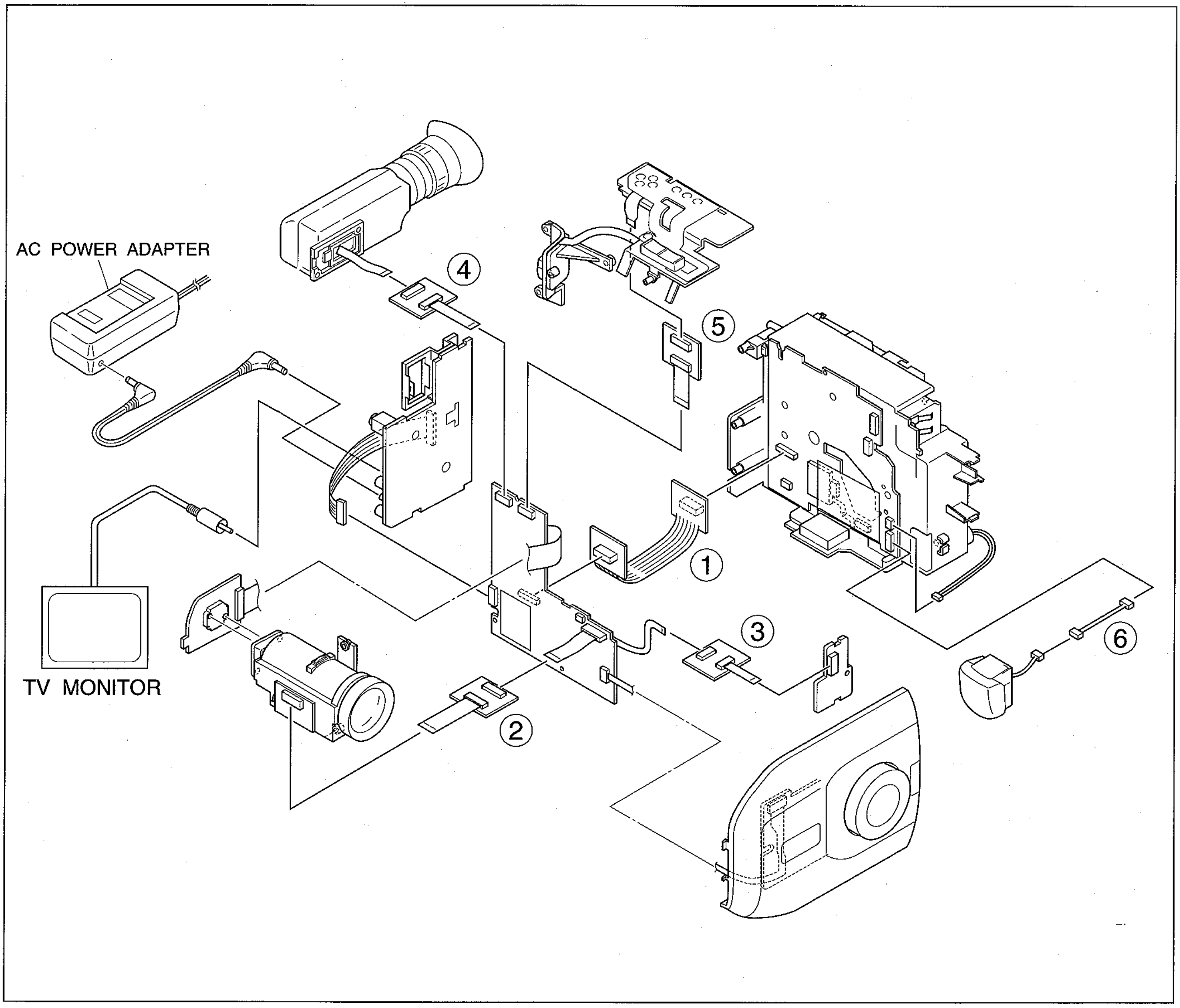


Fig. 1-7-1

SECTION 2
MECHANISM ADJUSTMENT

2.1 SERVICE CAUTIONS

2.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. When installing parts, be careful not to do with other parts as well as not to damage others. (Pay the most careful attention to the upper drum assy and tape transport mechanism.)

2.1.2 How to read the disassembly and assembly (For Mechanism Parts)

①: Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

②: Part to be removed or installed.

③: Location of part.
T = Top
B = Bottom

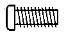
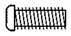
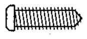
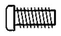
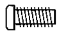
④: Fig. No. showing Procedure or Part Location.
M = Mechanism

⑤: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.

⑥: Adjustment information for installation.
(+) = Refer to Exploded Views for Lubrication information.

2.1.3 Main screws and washers to deal with disassembly/assembly

Table 2-1-1 lists screws and washers by their symbols which correspond to those shown in figures of this section "Disassemby and Assembly".

SYMBOL OF SCREW	SHAPE	PART NUMBER
S1		YQ44457
S2		LY40320-002A
S3		YQ44457-2
S4		SPSN1750Z
S5		YQ44304
S6		YQ44460
S7		LY40320-001A
S8		SPSH1740Z
S9		YQ44457-5

SYMBOL OF WASHER	SHAPE	PART NUMBER
W1		PQM30017-27
W2		Q03093-835
W3		PQM30017-25
W4		LY30015-001A

Table 2-1-1

(For Mechanism Parts)

STEP/LOC. No.	PART		Fig. No.	REMOVAL	INSTALLATION
				*UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	ADJUSTMENT CONDITION NOTE
①	ROLLER BASE ASSEMBLY	T	M1	(S1)	–
②	TENSION ARM ASSEMBLY	T	M1	(P1), (W1)	–
③	REEL DISC (SUP)	T	M1	(W1), (W2)	–
④	SLANT ARM ASSEMBLY	T	M1	(W1)	–
⑤	CANCEL LEVER ASSEMBLY	T	M2	(W1)	–
⑥	EJECT LEVER ASSEMBLY	T	M2	(W1)	–
⑦	CASSETTE GUIDE (L) ASSEMBLY	T	M2	(S1)	–

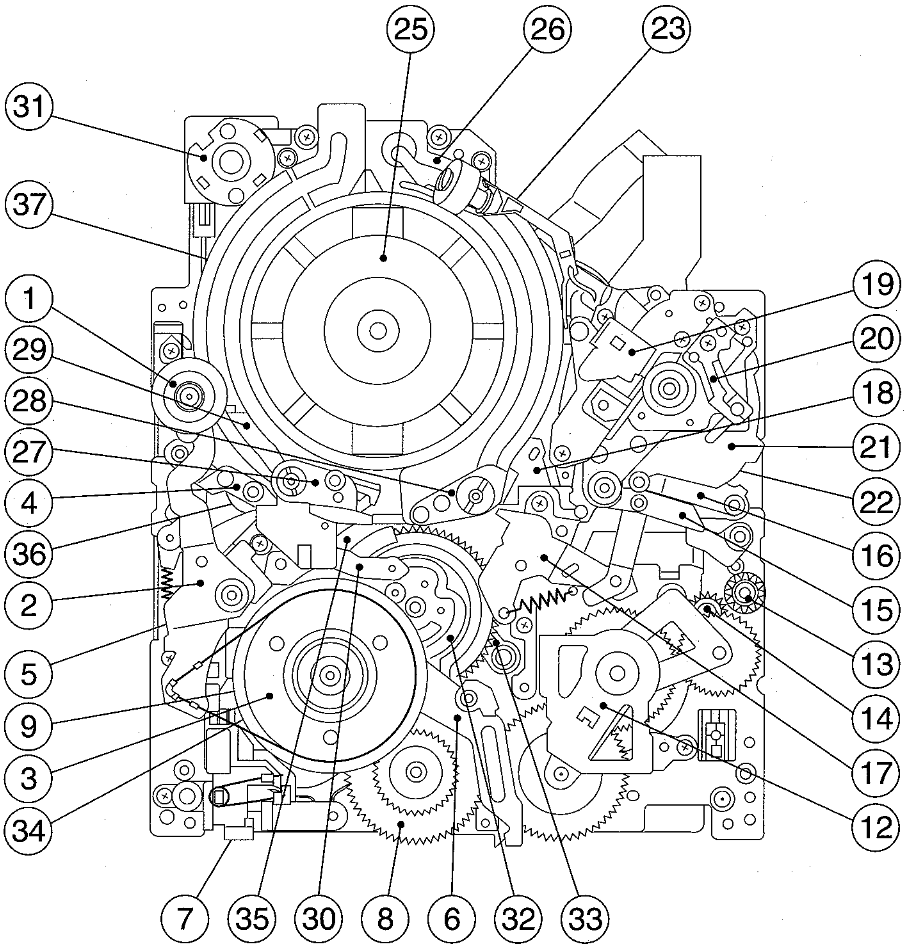
① ② ③ ④ ⑤ ⑥

2.2 DISASSEMBLY/ASSEMBLY OF MECHANISM PARTS

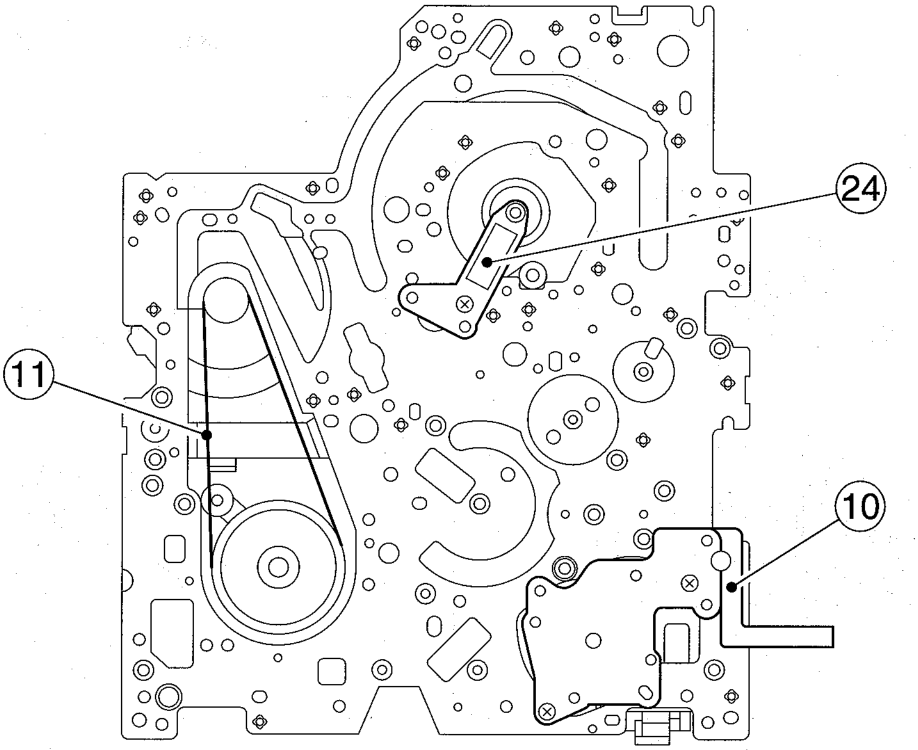
This procedure starts with the condition that the cabinet parts and deck parts. Also,,all the following procedures for adjustment and parts replacement should be performed in STOP mode. When reassembling, perform the step(s) in the reverse order.

STEP/LOC. No.	PART		Fig. No.	REMOVAL	INSTALLATION
				*UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	ADJUSTMENT CONDITION NOTE
①	ROLLER BASE ASSEMBLY	T	M1	(S1)	–
②	TENSION ARM ASSEMBLY	T	M1	(P1), (W1)	–
③	REEL DISC (SUP)	T	M1	(W1), (W2)	–
④	SLANT ARM ASSEMBLY	T	M1	(W1)	–
⑤	CANCEL LEVER ASSEMBLY	T	M2	(W1)	–
⑥	EJECT LEVER ASSEMBLY	T	M2	(W1)	–
⑦	CASSETTE GUIDE (L) ASSEMBLY	T	M2	(S1)	–
⑧	SUPPLY CLUTCH ASSEMBLY	T	M2	(W1)	–
⑨	WHEEL GEAR	T	M2	(W1)	See, Adjustment procedure for Section 2.3
⑩	ROTARY ENCODER	B	M3	2(S2)	–
⑪	TIMING BELT	B	M3	–	–
⑫	CENTER PULLEY UNIT	T/B	M3	2(S3)	–
⑬	TU GEAR	T	M3	(W1)	–
⑭	BRAKE SUB GEAR	T	M3	(W1)	–
⑮	P.R ARM ASSEMBLY	T	M3	(W3)	–
⑯	TU GUIDE ARM ASSEMBLY	T	M3	(W1)	–
⑰	LINK ARM ASSEMBLY	T	M4	(W3)	–
⑱	LED GUIDE	T	M4	(S1)	–
⑲	A/C HEAD UNIT	T	M4	2(S4)	–
⑳	SLANT POLE BASE ASSEMBLY	T	M5	(S5)	–
㉑	CAP MOTOR ASSEMBLY	T	M5	3(S5)	–
㉒	MOTOR BASE	T	M5	2(S1), (S6)	–
㉓	CLEANER ASSEMBLY	T/B	M5	2(S7), (L1)	
㉔	BRUSH	B	M6	(S7)	–
㉕	DRUM FINAL	T/B	M6	2(S1), (S8), *CATCHER	–
㉖	GUIDE RAIL	T	M6	8(S9)	–
㉗	POLE BASE (SUP)	T	M6	–	–
㉘	POLE BASE (TU)	T	M6	–	–
㉙	COVER PLATE	T	M7	–	–
㉚	DRIVE LEVER ASSEMBLY	T	M7	–	–
㉛	MOTOR BRACKET ASSEMBLY	T	M7	3(S1)	–
㉜	CONTROL CAM	T	M8	(W4)	See, Adjustment procedure for Section 2.3
㉝	LINK LEVER	T	M8	–	–
㉞	MIDDLE GEAR	T	M8	–	–
㉟	LOADING GEAR(T) ASSEMBLY	T	M8	(W1)	See, Adjustment procedure for Section 2.3
㊱	LOADING GEAR(S) ASSEMBLY	T	M8	(W1)	–
㊲	LOADING RING ASSEMBLY	T	M8	4(S1)	See, Adjustment procedure for Section 2.3

TOP VIEW


25
26
23
31
37
1
29
28
27
4
36
2
5
9
3
34
19
20
18
21
22
16
15
13
14
17
12
7
35
30
8
6
32
33

BOTTOM VIEW



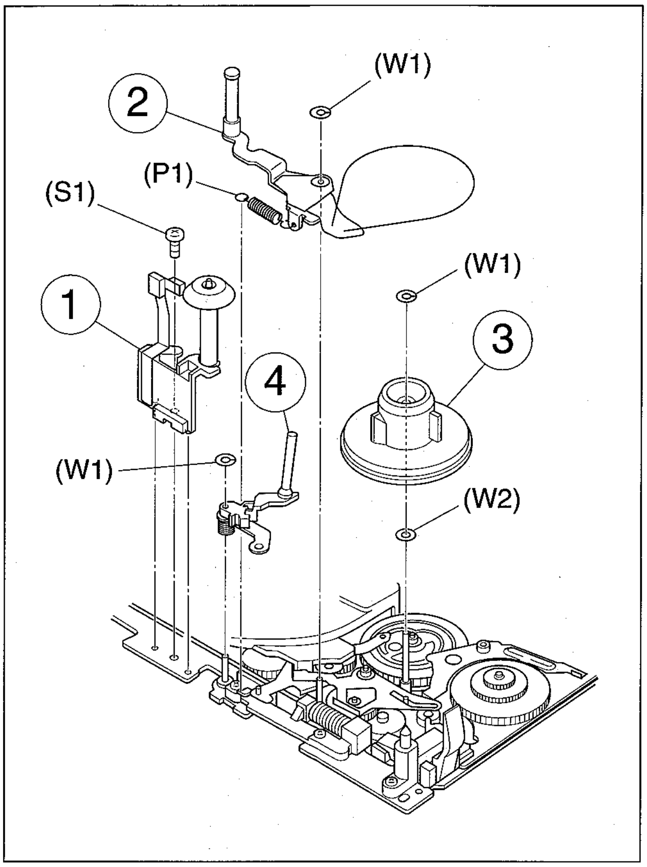

2
(W1)
(P1)
(S1)
(W1)
1
3
4
(W1)
(W2)

Fig. M1

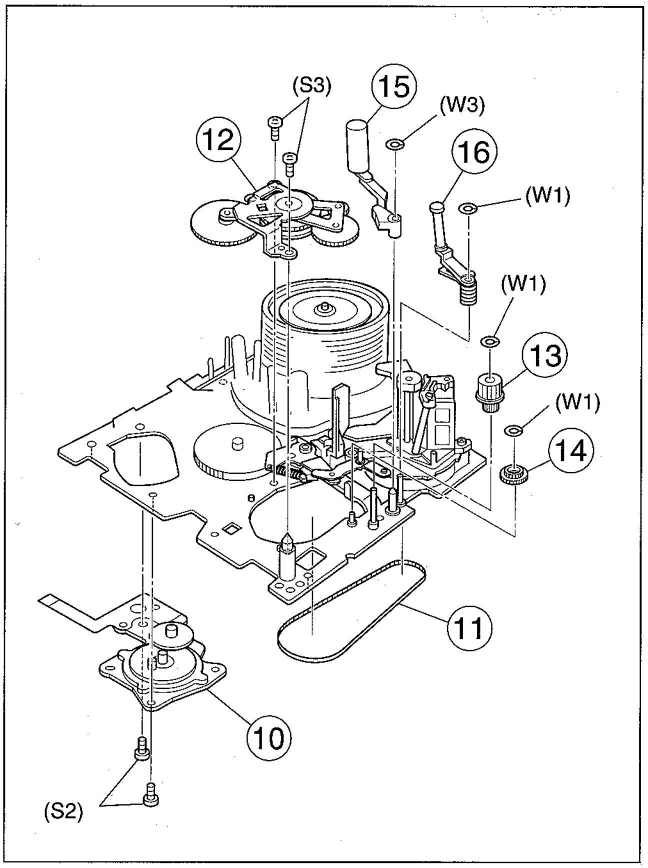

(S3)
15
(W3)
12
16
(W1)
(W1)
13
(W1)
14
11
10
(S2)

Fig. M3

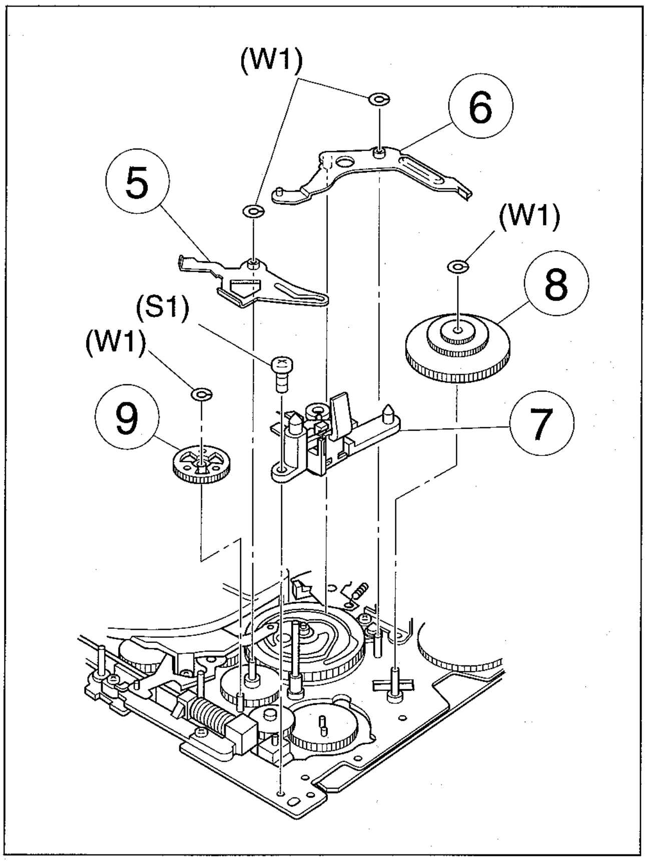

(W1)
6
5
(W1)
8
(S1)
(W1)
9
7

Fig. M2

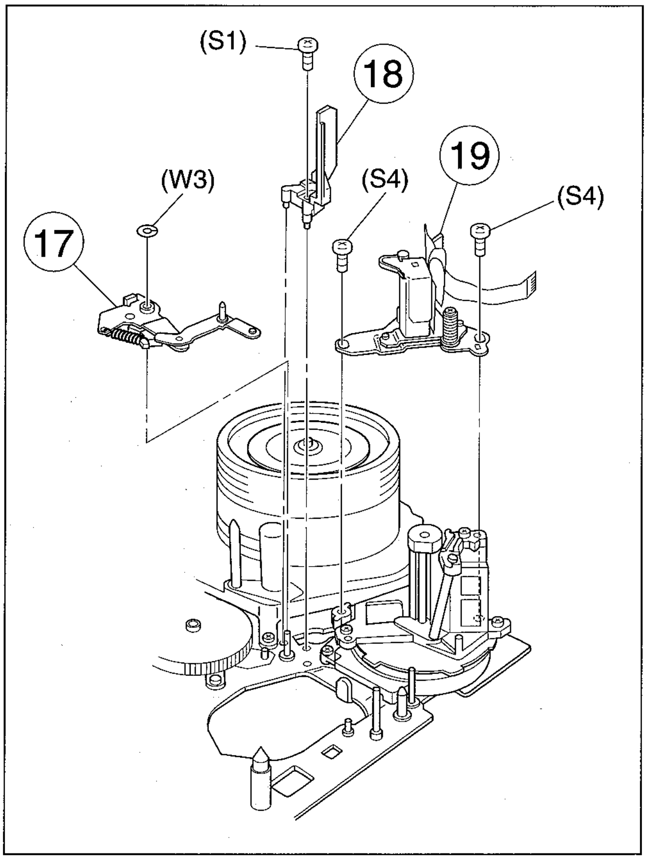

(S1)
18
19
(W3)
(S4)
(S4)
17

Fig. M4

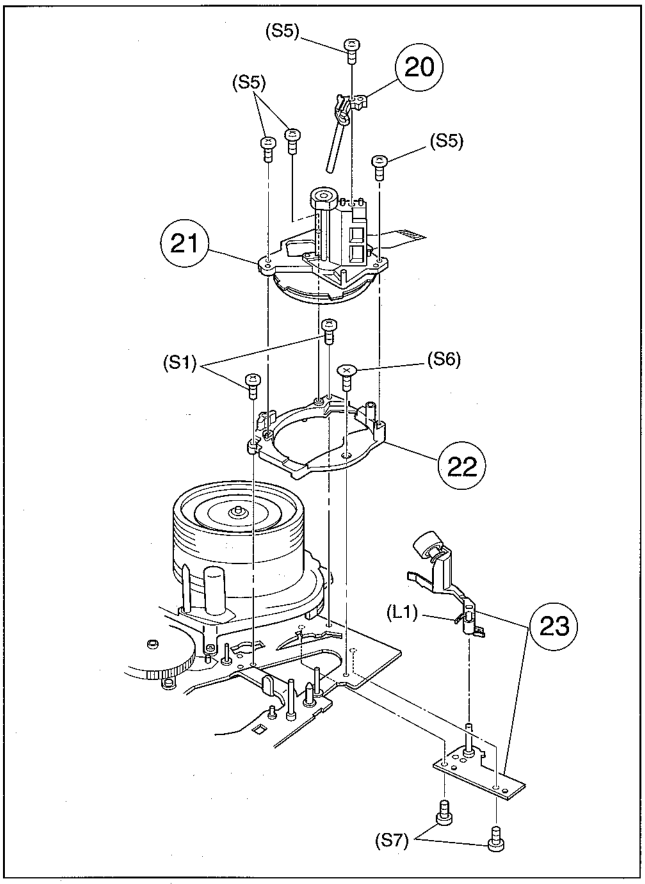

(S5)
20
(S5)
(S5)
21
(S1)
(S6)
22
(L1)
23
(S7)

Fig. M5

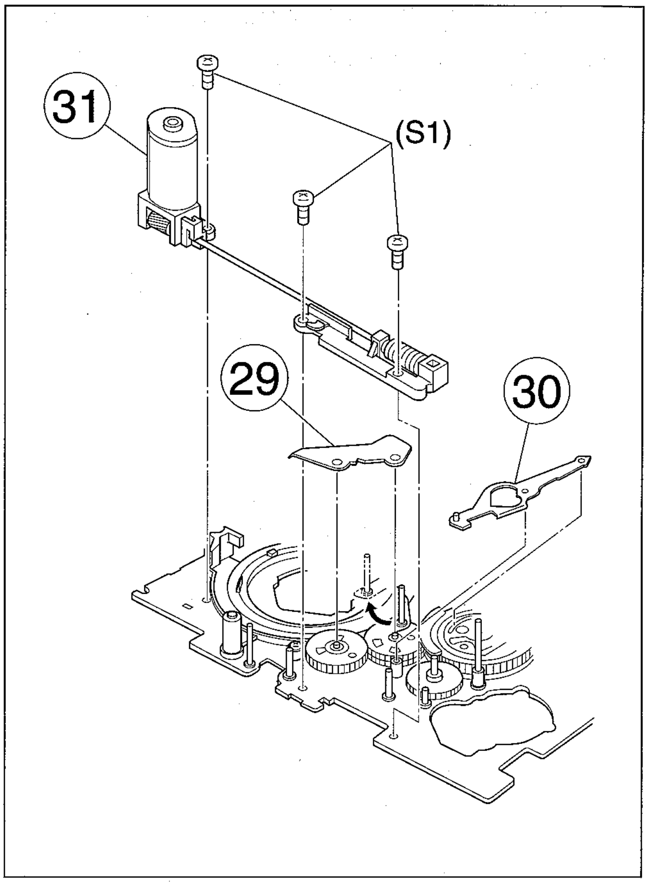


Fig. M7

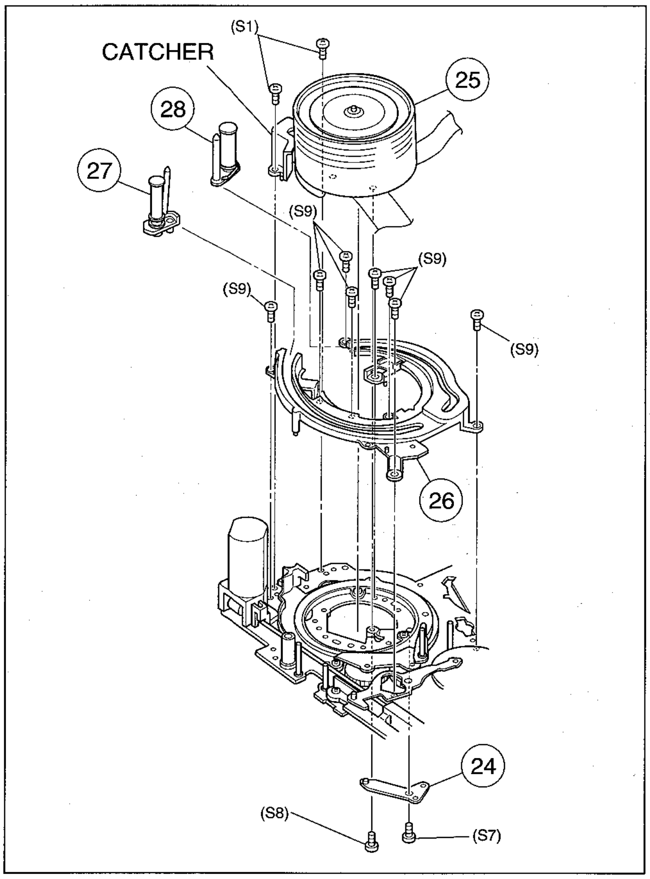

(S1)
CATCHER
25
28
27
(S9)
(S9)
(S9)
(S9)
26
24
(S8)
(S7)

Fig. M6

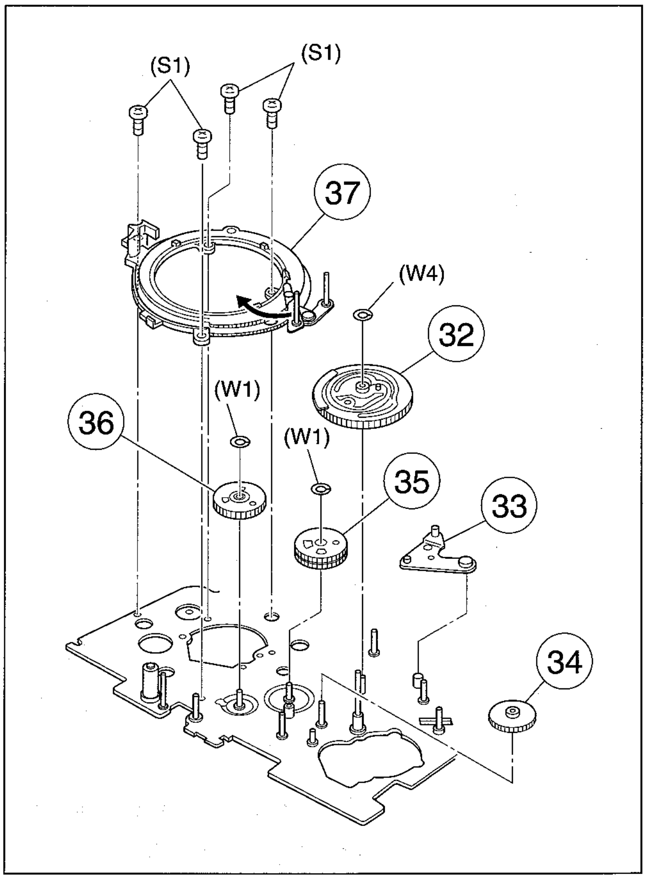

(S1)
(S1)
37
(W4)
32
(W1)
36
(W1)
35
33
34

Fig. M8

2.3 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

Note: *Pay careful attention to the installing order and phase of mechanism parts of the loading system.*

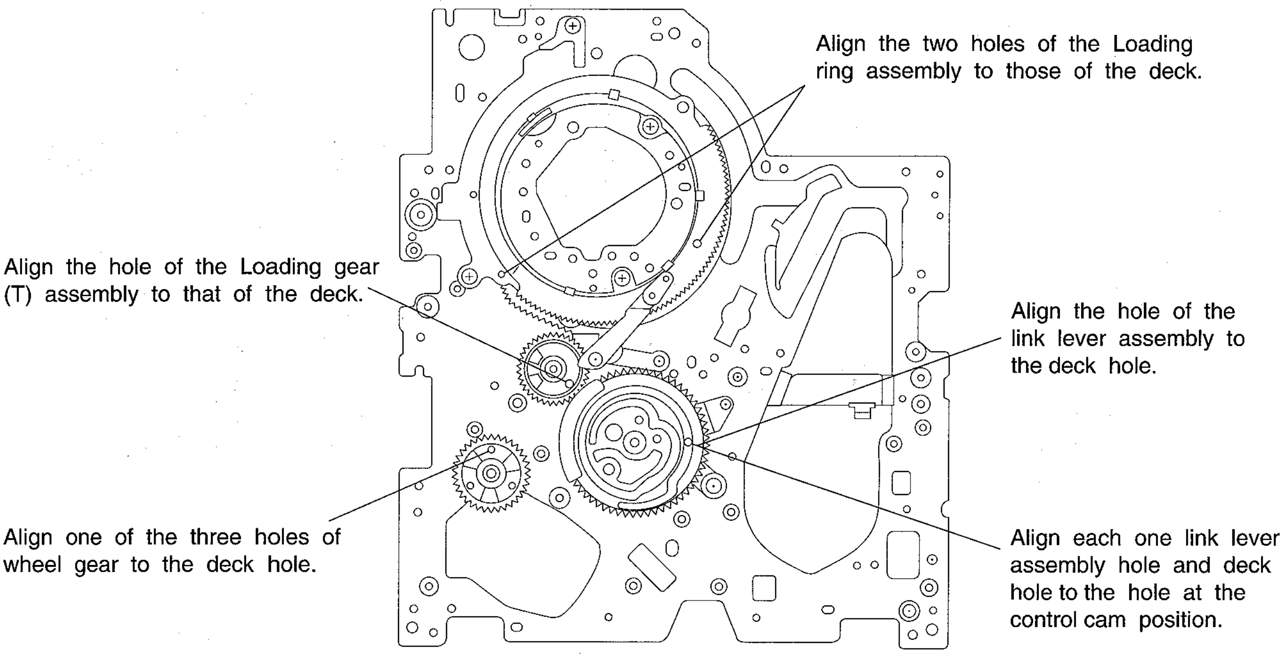

Align the two holes of the Loading ring assembly to those of the deck.
Align the hole of the Loading gear (T) assembly to that of the deck.
Align the hole of the link lever assembly to the deck hole.
Align one of the three holes of wheel gear to the deck hole.
Align each one link lever assembly hole and deck hole to the hole at the control cam position.

Fig. 2-3-1 TOP OF MAIN DECK

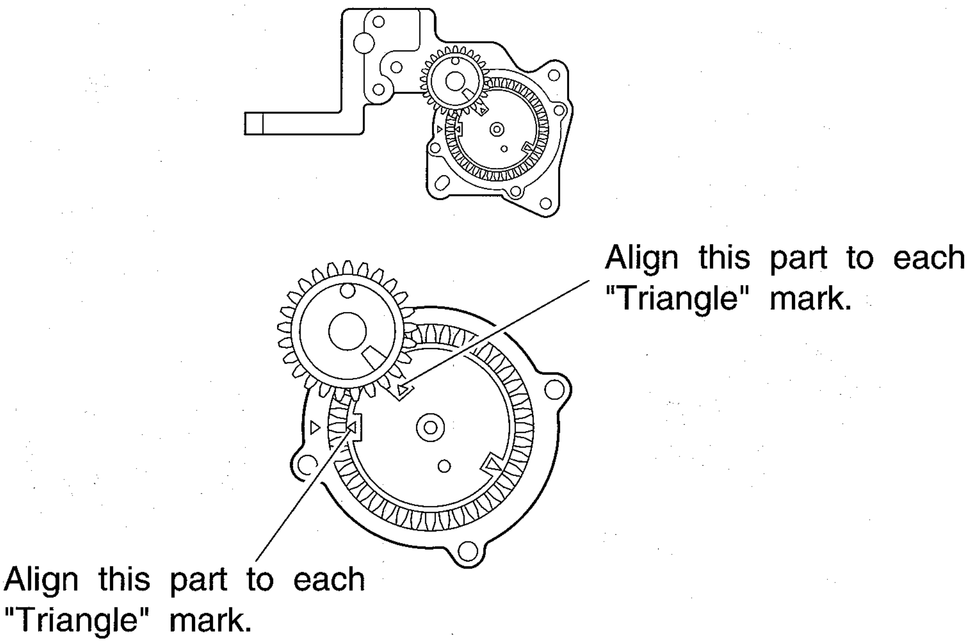

Align this part to each "Triangle" mark.
Align this part to each "Triangle" mark.

Fig. 2-3-2 ROTARY ENCODER

2.4 TAPE TRANSPORT ADJUSTMENT

In most cases the deck section is in need electrical adjustment, it results from replacement of worm mechanical parts or video heads. In the event of malfunction with electrical circuits, troubleshouting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

2.4.1 Required adjustment tools

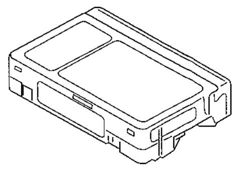
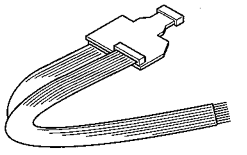
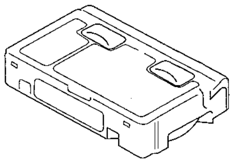
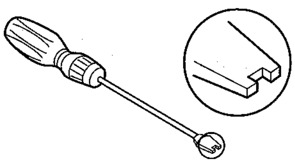
Alignment tape for SP interchangeability MHPE-C: SP	PATCH CORD YTU93082A
	
Cassette torque meter PUJ50431-2	Roller driver PTU94002-2
	

Table 2-4-1

2.4.2 Back tension

1. Set a cassette torque meter onto the deck and measure the back tension in standard REC mode to confirm that the back tension is 9.5 – 17.5 gf•cm.
2. If not, replace the tension band.
   When the value widely fluctuates in the measurement, replace the supply reel disk.
3. With the cassette torque meter, confirm that the play torque is 15 – 25 gf•cm.
   If necessary, replace the center pully unit.

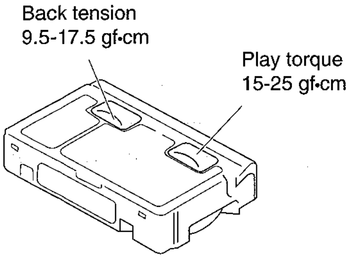


Fig. 2-4-1 Cassette torque meter

2.4.3 Tape pattern

1. Remove the CAP (LITHIUM) and remove the rear cover assembly as shwon on Fig. C2 (Page 1-2).
2. Connect the patch cord (YTU93082A) to CN25 on the MAIN1 board as shwon on Fig. 2-6-1 (Page 2-10).
3. Observe signal at pin 5 of CN1 (V. TP FM) with external trigger from pin 8 of CN1 (V. FF) on the patch cord.
4. Playback the SP stairstep signal of the alignment tape, and maximize the FM waveform by the tracking button.
5. Set the tracking control to the center position by simultaneously pressing the tracking (-) and (+) buttons and maximize the FM waveform by the tracking button.
6. If the observed FM waveform is not flat, adjust the height of the supply of take-up guide roller with the roller driver.

   Note: *To prevent the tape from damage, turn the guide rollers slowly.*

7. By operating the tracking button (both in + and – directions) in the manual tracking mode, vary the output level of the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape.
8. When the FM waveform breaks in the level varying process, subtly adjust the height of guide rollers at every breaking point so that the waveform varies as flat as possible.
   Repeat the above steps 6. and 7. several times to confirm that the waveform is flat as a whole.

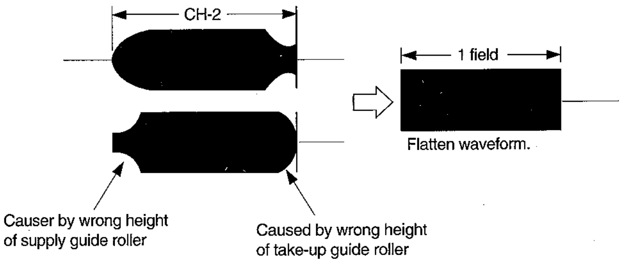


Fig. 2-4-2 FM waveform-1

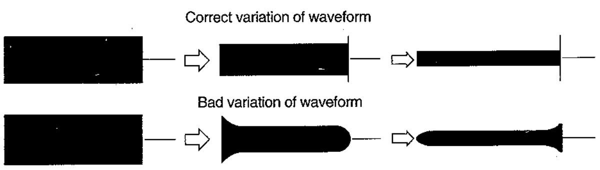


Fig. 2-4-3 FM waveform-2

11. Through the above steps, confirm that there occur no wrinkling and damage in the tape around the pinch roller and TU guide pole whenever the deck is in operation of Loading/Unloading, Search Rewind and at mode change from Search Rewind to play mode. If wrinkling or damage in the tape occurs around the TU guide pole, adjust the angle (slant) of the A/C head to the tape. So that the tape normally runs along the lower flange of the guide pole.

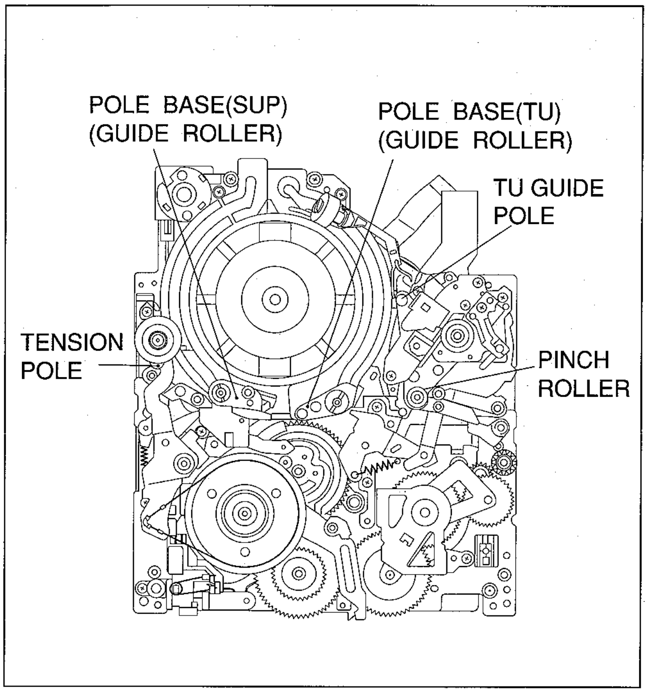

POLE BASE(SUP)
(GUIDE ROLLER)
POLE BASE(TU)
(GUIDE ROLLER)
TU GUIDE
POLE
TENSION
POLE
PINCH
ROLLER

Fig. 2-4-4 Tape transport system

2.4.4 A/CTL head height & azimuth

1. Connect the patch cord (YTU93082A) to CN25 on the MAIN1 board.
2. Connect the channel-1 scope probe to the audio output and connect the channel-2 scope probe to CN1 pin 10 on the patch cord.
3. Playback the SP 6 kHz segment of the alignment tape.
4. Set the tracking to its center range by pressing the (+) and (–) tracking controls simultaneously.
5. Adjust screws Ⓐ, Ⓑ and Ⓒ approximately 45 degrees in the same direction to obtain maximum audio output and CTL signal levels.
6. As a final fine adjustment, adjust screw Ⓑ for minimum signal level fluctuation and screw Ⓒ for maximum output signal level.

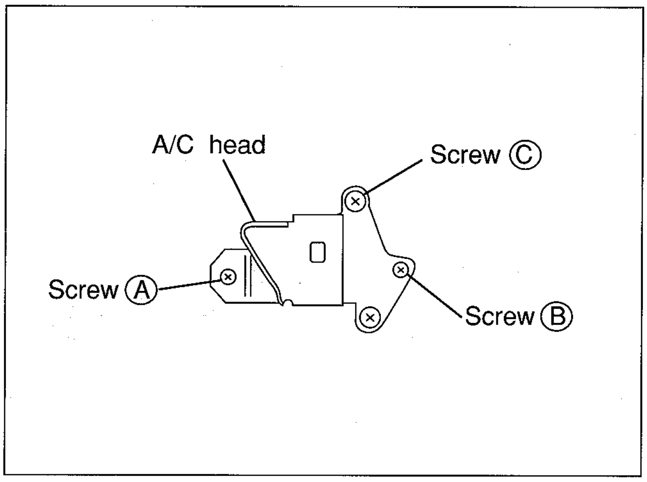

A/C head
Screw Ⓒ
Screw Ⓐ
Screw Ⓑ

Fig. 2-4-5 A/C head

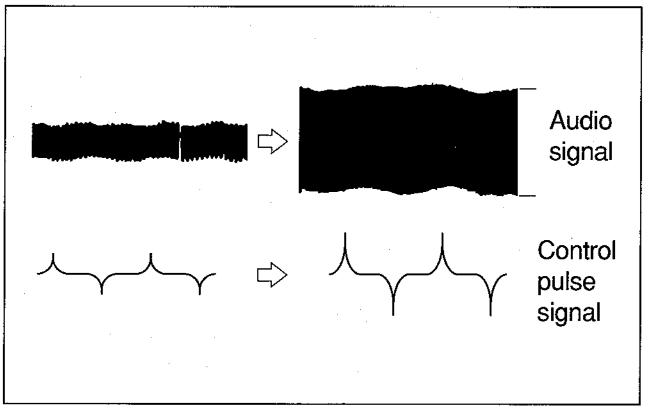

Audio
signal
Control
pulse
signal

Fig. 2-4-6 Audio and CTL signal

2.4.5 Phase of control head (X value)

1. Connect the patch cord (YTU93082A) to CN25 on the MAIN1 board.
2. Play back the SP stairstep signal of the alignment tape and observe signal at pin 5 of CN1 (V.TP FM) with external trigger from pin 8 of CN1 (V.FF) on the patch cord.
3. Operate the tracking button in the center and manual tracking mode by pressing the tracking (+) and (–) buttons and confirm that the FM output level is maximum at the center position as shown in Fig. 2-4-8.
4. If necessary, slightly loosen the setscrews Ⓓ and Ⓔ and insert the Tweezers into the notch and guide hole to move the A/C head fully in the direction of the capstan to the extent.
5. Gradually move the A/C head toward the drum to find the position where the FM output level maximum for the first time (a' – b' in Fig. 2-4-8).
6. Fine adjust the phase of the A/C head and tighten the screwsⒹ and Ⓔ at the point a.

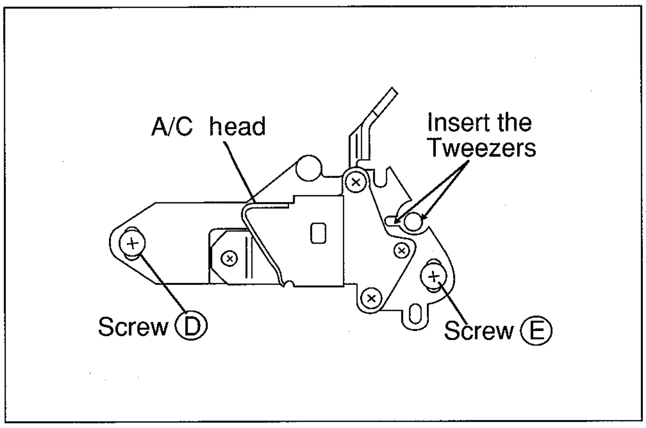


Fig. 2-4-7 Phase of control head

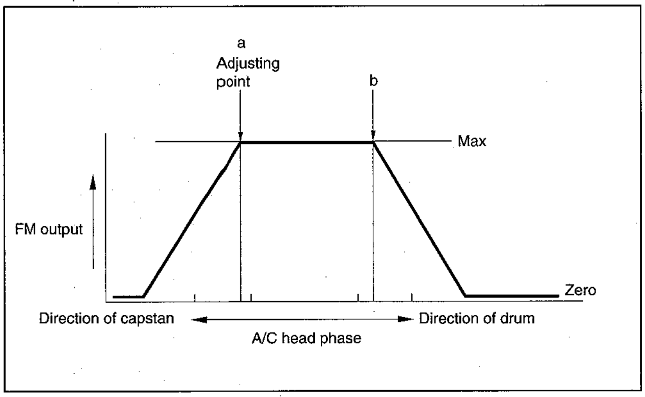


Fig. 2-4-8 Phase adjustment point of control head

2.5 REMARKS

2.5.1 Cleaning

1. For cleaning of the upper drum (particularly video heads), use fine-woven cotton cloth or Kimwipe with alcohol soaks through. Do not move the cloth but turn the upper drum counterclockwise.

   Note: ***Make sure not to move the cloth in the vertical direction to the video head, since it may cause damage of the video heads.***

2. For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton swab soaked alcohol.
3. After cleaning, confirm that the cleaned parts are completely dry before loading the deck with cassette tape.

2.5.2 Applying oil and grease

1. Periodical oiling and greasing are not required but should be done to new parts when replacing. If oil and grease on the other parts of the other party are old and dirty, wipe them clean and apply new oil or grease.
2. For parts and points to apply oil and grease, refer to the exploded view of the mechanism assembly (M3). Table 2-5-1 specifies oil and grease to be used.
3. When oiling, clean the objective parts with alcohol first and apply one or two drop(s) of oil. Too much oiling causes rotary parts to slip because of oil leakage.

Classification	Name	Symbol in drawing
Grease	Grease	AA
Oil	Cosmo Hydro HV100	BB

Table 2-5-1 Specific oil and grease to be used

2.5.3 Checkup

After replacement of the supply reel disk and tension band, make sure to inspect back tension according to the adjustment procedure of MECHANISM ADJUSTMENT section.

2.6 PATCH CORD (YTU93082A) CONNECTION

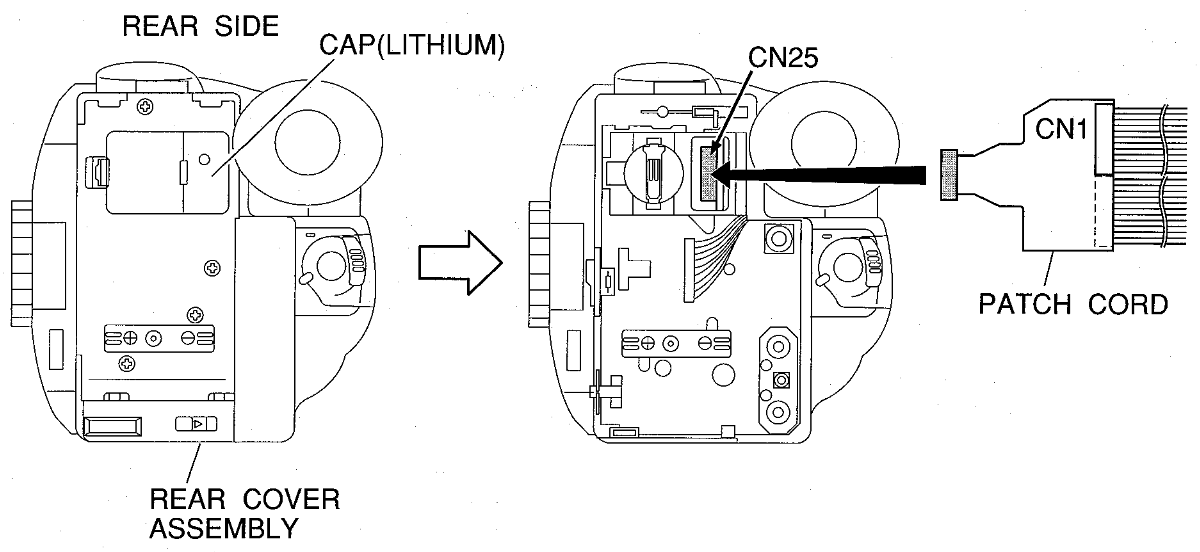

REAR SIDE
CAP(LITHIUM)
CN25
CN1
PATCH CORD
REAR COVER ASSEMBLY

Fig. 2-6-1 PATCH CORD CONNECTION

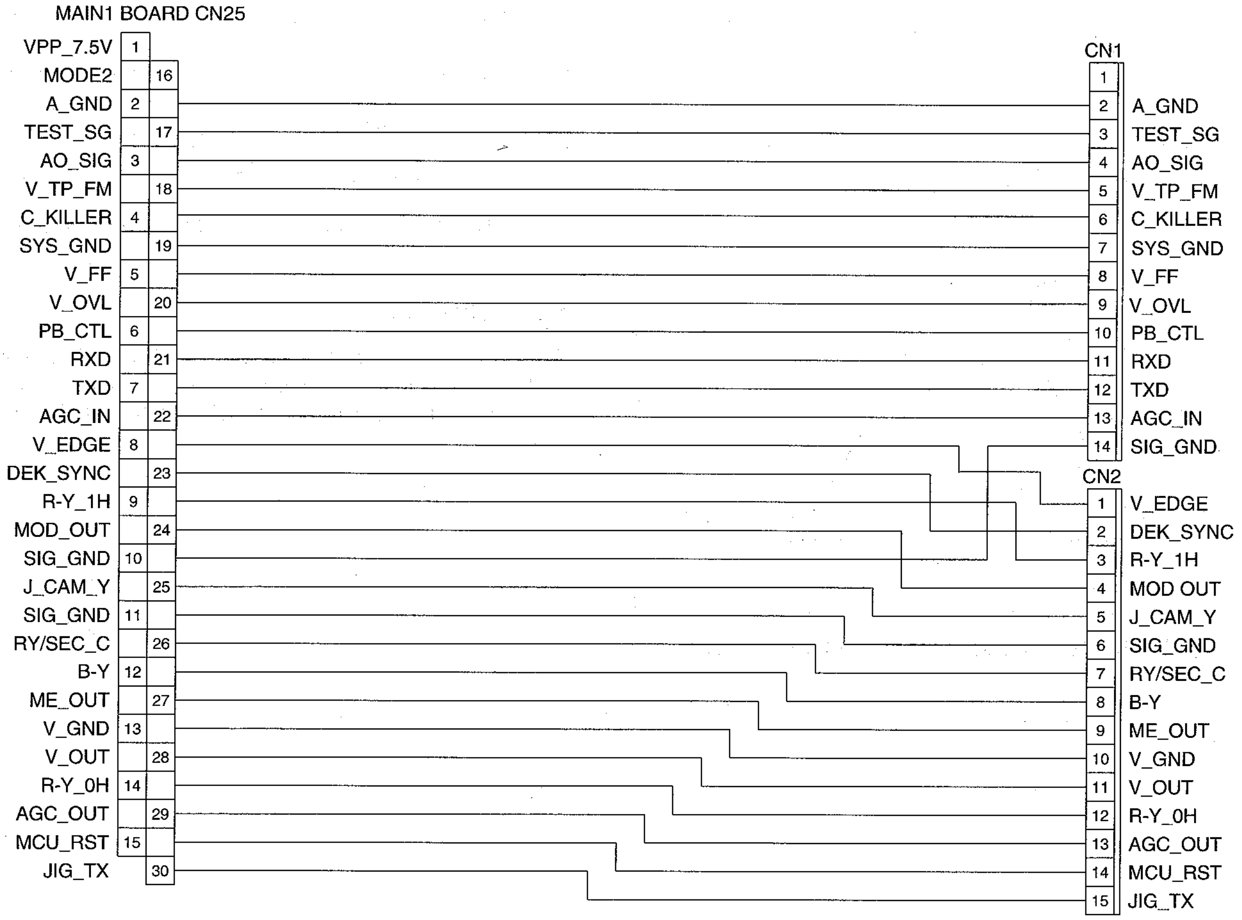

MAIN1 BOARD CN25
VPP_7.5V 1
MODE2 16
A_GND 2
TEST_SG 17
AO_SIG 3
V_TP_FM 18
C_KILLER 4
SYS_GND 19
V_FF 5
V_OVL 20
PB_CTL 6
RXD 21
TXD 7
AGC_IN 22
V_EDGE 8
DEK_SYNC 23
R-Y_1H 9
MOD_OUT 24
SIG_GND 10
J_CAM_Y 25
SIG_GND 11
RY/SEC_C 26
B-Y 12
ME_OUT 27
V_GND 13
V_OUT 28
R-Y_0H 14
AGC_OUT 29
MCU_RST 15
JIG_TX 30
CN1
1
2 A_GND
3 TEST_SG
4 AO_SIG
5 V_TP_FM
6 C_KILLER
7 SYS_GND
8 V_FF
9 V_OVL
10 PB_CTL
11 RXD
12 TXD
13 AGC_IN
14 SIG_GND
CN2
1 V_EDGE
2 DEK_SYNC
3 R-Y_1H
4 MOD OUT
5 J_CAM_Y
6 SIG_GND
7 RY/SEC_C
8 B-Y
9 ME_OUT
10 V_GND
11 V_OUT
12 R-Y_0H
13 AGC_OUT
14 MCU_RST
15 JIG_TX

Fig. 2-6-2 PATCH CORD SCHEMATIC DIAGRAM

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 ELECTRICAL ADJUSTMENT

3.1.1 PREPARATION

1. Precaution

This model does not contain adjustment controls (VR). General deck system and camera system adjustment are not required. However, if MAIN1 board need replacement, please use original E^{2}PROM on to new board. Then adjustment are not required. And if parts such as the following need replacement, special computerized adjustment are required (Refer to sec. 3.1.1-5). Please contact to JVC service for detaile information.

- OP block
- COLOR E.VF
- E^{2}PROM (IC105 of MAIN1 board)

In the event of malfunction with electrical circuits, troubleshooting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

1. In case of wiring to chip test points for measurement, use IC clips, etc. to avoid any stress.
2. Since connectors are fragile, carefully handle them in disconnecting and connecting.
3. Shortcircuit between operation un it and DECK chassis.

2. Required test equipment

1. Color TV monitor.
2. AC power adapter (AA-V15 and AA-V11 or equivalent).
3. Oscilloscope (dual-trace type, for more than 20 MHz).
4. Digital voltmeter
5. Frequency counter (with threshold level adjuster)
6. Personal computer

3. Required adjustment tools

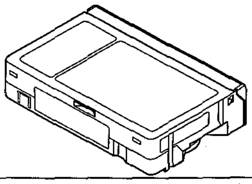
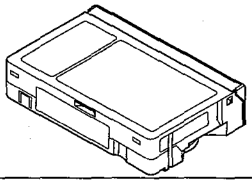
Alignment tape (for SP interchangeability) MHPE-C	Alignment tape (for N. SP PB Y/C level) MHVE-2C
	

Table 3-1-1 Required adjustment tools

4. Setup for E. VF section adjustment

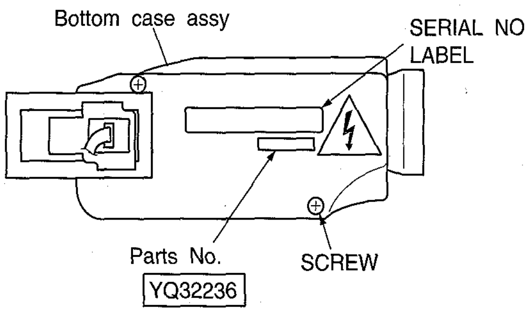
1) B/W E.VF (for AX280/AX480)

Referring to "SEC. 1 DISASSEMBLY" and connect the E.VF FPC to CN12 of the MAIN1 board.

Note:

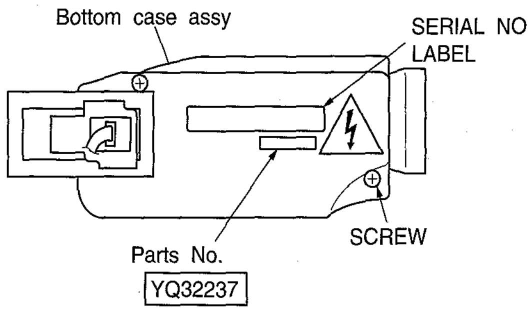
- *There are two types of E. VFs for this model.*
- *The adjustment procedure of them are different. For performing the adjustment, please follow the item mentioned on the figure below.*

<TYPE M> (YQ32236)



Adjustment Item : 3.2

<TYPE T> (YQ32237)



Adjustment Item : 3.3

2) COLOR E.VF (FOR AX380)

Referring to "SEC. 1 DISASSEMBLY" and connect the E.VF FPC to CN12 of the MAIN1 board.

Note:

- *This adjustment falls into a special adjustment that requires a personal computer.*
  For details, refer to "3.1.1 Preparation".

5. Required adjustment tools for Service support system

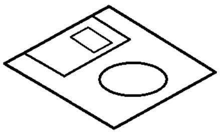
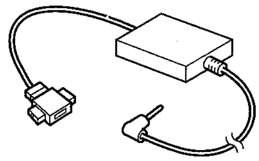
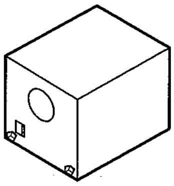
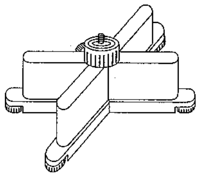
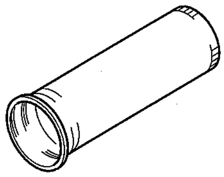
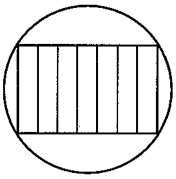
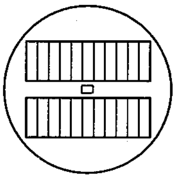
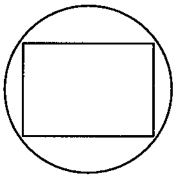
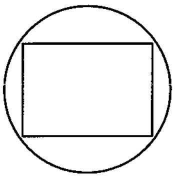
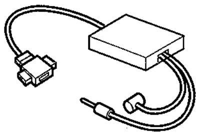
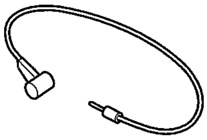
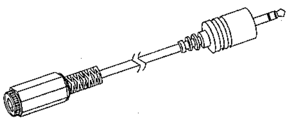
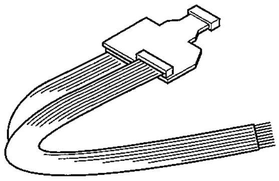
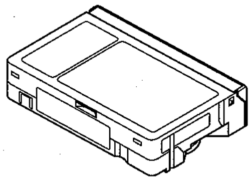
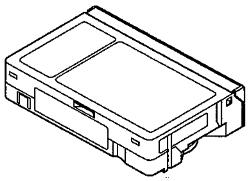
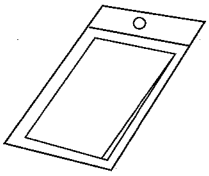
service suport system software YTU94057-28	PC cable QAM0099-002	Light box YTU93072A-1	Camera stand YTU93079
			
Infinity adjustment lens YTU92001B	Color bar chart YTU92001-051	Gray scale chart YTU92001-052	White balance chart YTU92001-053
			
Skintone chart YTU92001-054	Interface cable YTU93063	Adapter cable YTU94066	JLIP conversion cable YTU94084A
			
Patch cord YTU93082A	Alignment tape (for SP Interchangeability) MHPE-C	Alignment tape (for N. SP PB Y/C level) MHVE-2C	Cleaning cloth KSMM-01
			

Table 3-1-2 Required adjustment tools for Service support system

6. Connections for Service support system

<TYPE I>

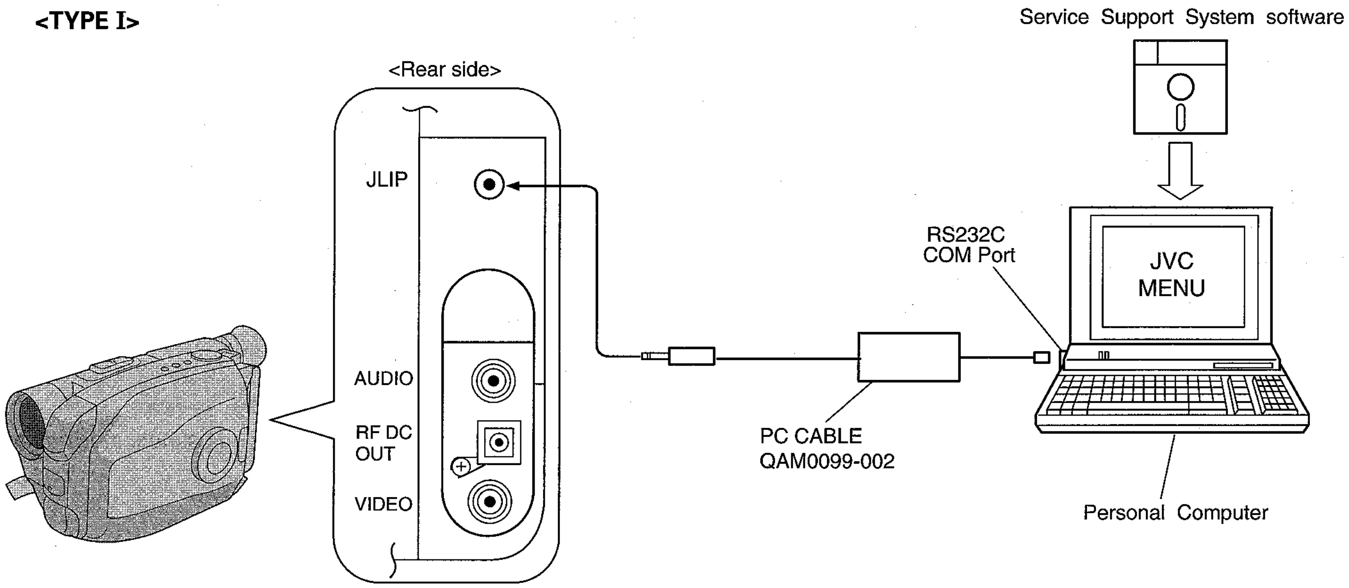

Service Support System software
<Rear side>
JLIP
AUDIO
RF DC OUT
VIDEO
RS232C COM Port
JVC MENU
PC CABLE QAM0099-002
Personal Computer

Fig. 3-1-1 Connection for Service support system (TYPE I)

<TYPE II>

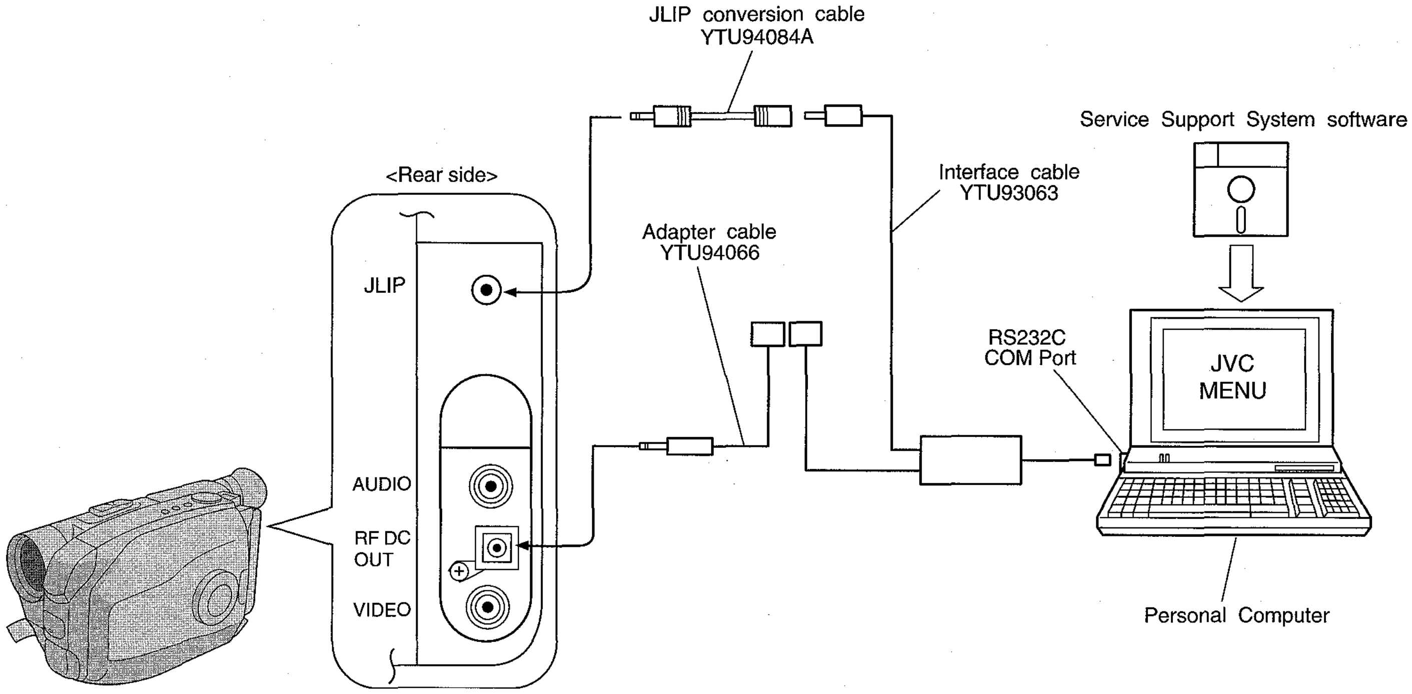
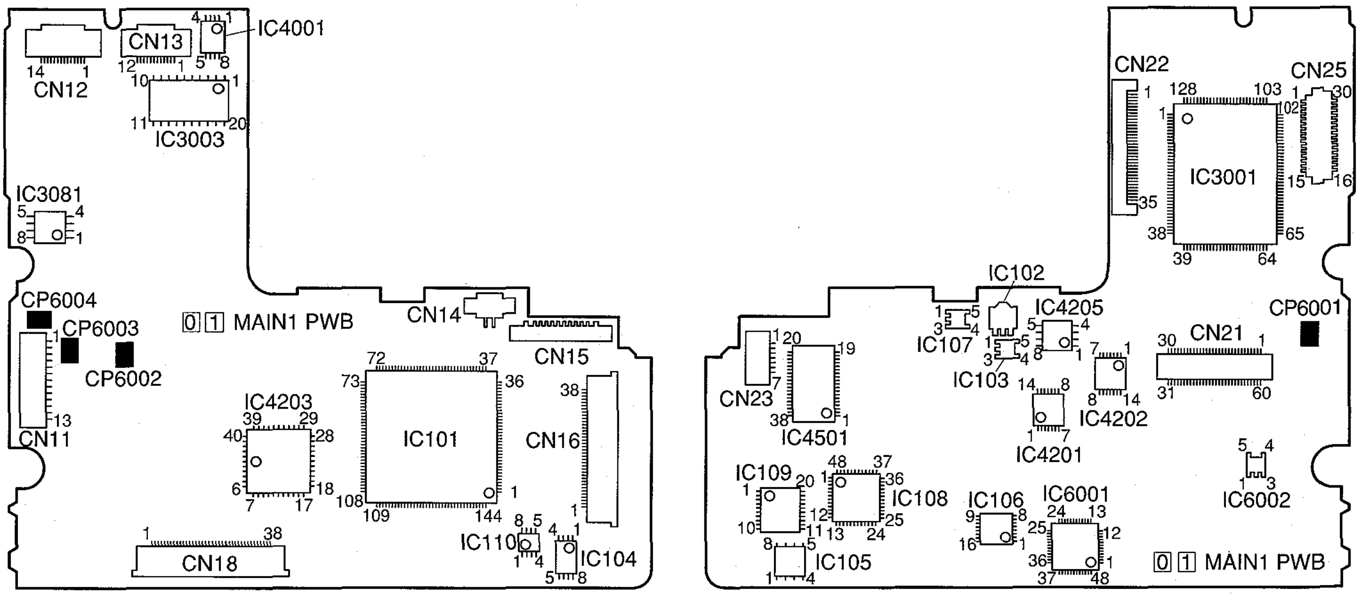

JLIP conversion cable
YTU94084A
Service Support System software
<Rear side>
Interface cable
YTU93063
Adapter cable
YTU94066
JLIP
RS232C
COM Port
JVC
MENU
AUDIO
RF DC
OUT
VIDEO
Personal Computer

Fig. 3-1-2 Connection for Service support system (TYPE II)

■ CIRCUIT PROTECTOR LOCATION FOR MAIN1


CN12
CN13
IC4001
IC3003
IC3081
CP6004
CP6003
CP6002
CN11
0 1 MAIN1 PWB
CN14
CN15
IC4203
IC101
CN16
CN18
IC110
IC104
CN22
CN25
IC3001
IC102
IC4205
CP6001
IC107
IC103
CN21
CN23
IC4501
IC4202
IC4201
IC109
IC108
IC106
IC6001
IC6002
IC105
0 1 MAIN1 PWB

-COMPONENT SIDE-

-FOIL SIDE-

Fig. 3-1-3 Circuit protector location for MAIN board assembly

3.2 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT <TYPE M>

Notes: *Unless otherwise specified, all measurement points and adjustment parts are located on E. VF board.*

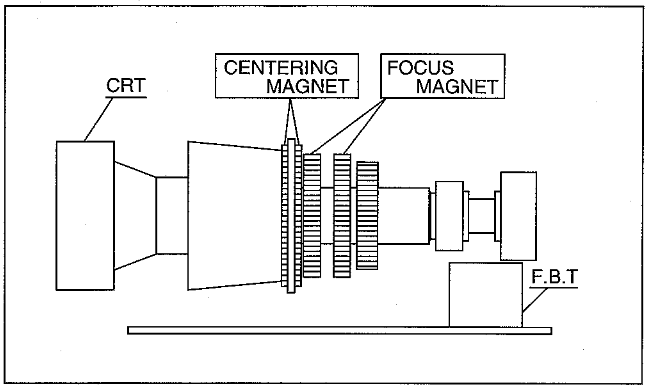


Fig. 3-2-1 E. VF

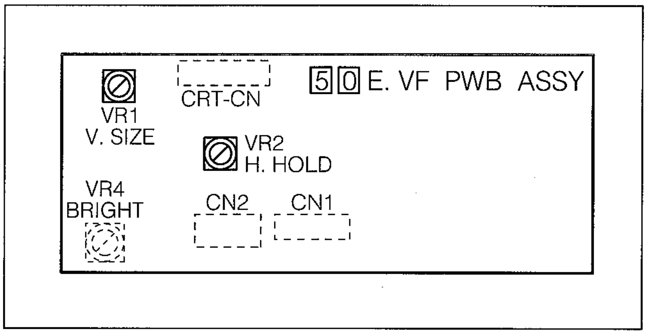


Fig. 3-2-2 E. VF board

3.2.1 Horizontal sync.

Subject	• Alignment tape [MHPE-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR2 (H. HOLD)
Specification	• The midpoint of the two markings

1) Observing the viewfinder screen, turn VR2 fully clockwise to make the picture unstable.
2) Slowly return VR2 counterclockwise to find a point where the picture becomes stable, and mark this position.
3) Turn VR2 fully counterclockwise to make the picture unstable in the same manner as 1) above.
4) Slowly return VR2 clockwise until the picture becomes stable, and mark this position.
5) Finally set VR2 to the midpoint between the two markings of 2) and 4).

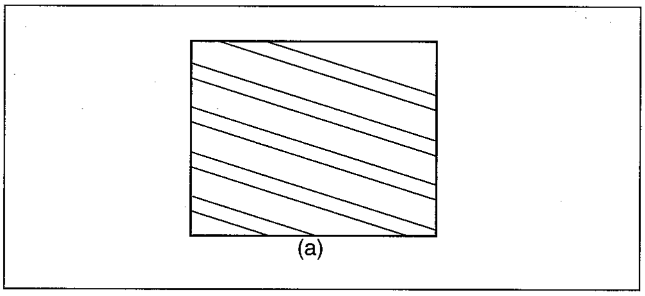

(a)

Fig. 3-2-3 Horizontal sync. 1

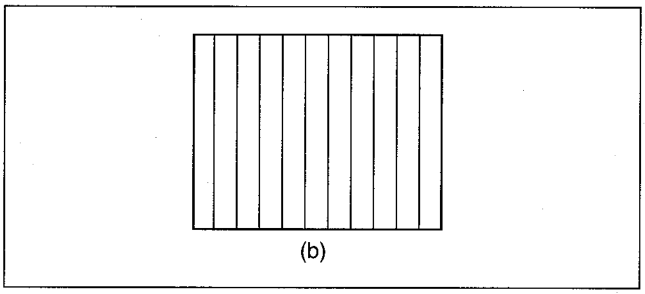

(b)

Fig. 3-2-4 Horizontal sync. 2

3.2.2 PLL adjustment

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR1 (V. SIZE)
Specification	• Normal picture amplitude

1) Observing the viewfinder screen, adjust VR1 for normal picture amplitude.

3.2.3 Centering

Subject	• Alignment tape [MHPE-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Centering magnet (CRT assy)
Specification	• The center of the E. VF screen

1) While observing the viewfinder screen, adjust the centering magnet to locate the stairstep in the center of the viewfinder screen.

3.2.4 Focus

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurment point	• E. VF screen
Adjustment part	• Focus magnet (CRT assy)
Specification	• The center area is clear and defined

1) While observing the viewfinder screen, adjust the focus magnet for the deflecting yoke so that the picture at the central area of the screen is clear and defined.

3.2.5 Brightness

Subject	• -
Mode	• EE • Lens closed
Equipment	• E. VF
Measurment point	• E. VF screen
Adjustment part	• VR4 (BRIGHT)
Specification	• The CRT raster is just barely visible

1) Close the lens with the cap and adjust VR4 so that the raster of the CRT is just visible in the E. VF.

3.3 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT <TYPE T>

Notes:

- *Unless otherwise specified, all measurement points and adjustment parts are located on E. VF board.*
- *After adjustment or replacement of the deflection yoke or the centering magnet, fix it by the band as shown the figure below.*

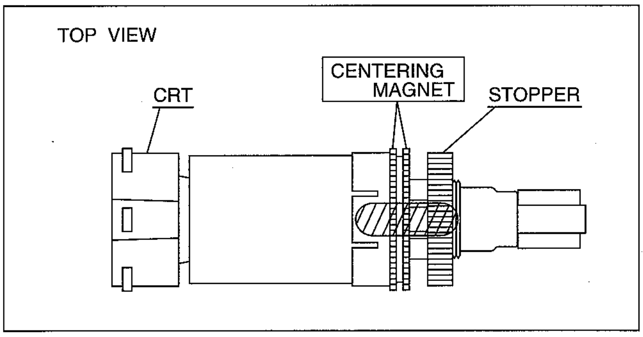


Fig. 3-3-1 E. VF

- *After adjustment is completed, compare the picture on the E. VF screen with the monitor TV.*

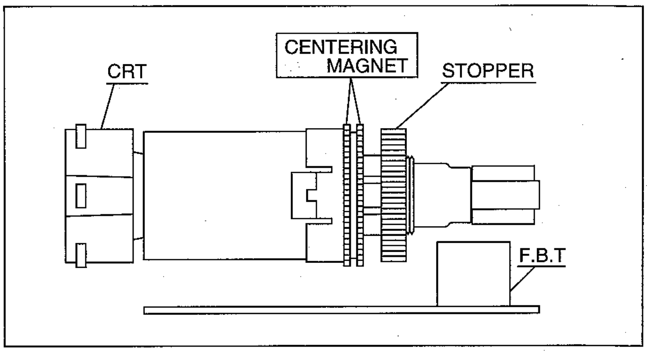


Fig. 3-3-2 E. VF

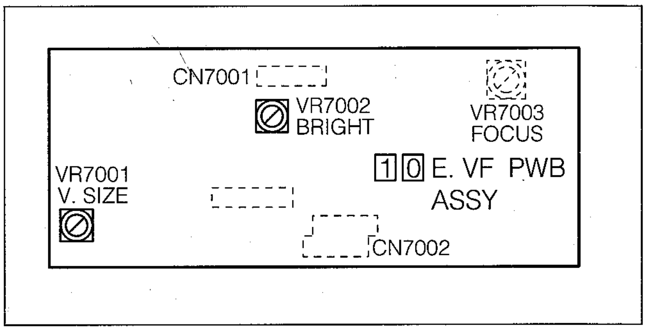


Fig. 3-3-3 E. VF board

3.3.1 Tilt

Subject	• Alignment tape [MHPE-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Deflection yoke
Specification	• The picture is visible as same as monitor TV.

1) Put the deflection yoke to the most inner side of CRT neck first. Then fix the stopper temporary.
2) Adjust the tilt of picture on the E. VF screen by tilting the deflection yoke.
3) Fix the stopper completely.

3.3.2 Centering

Subject	• Alignment tape [MHPE-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Centering magnet (CRT assy)
Specification	• The center of the E. VF screen

1) While observing the viewfinder screen, adjust the centering magnet to locate the stairstep in the center of the viewfinder screen.

3.3.3 Vertical scanning

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7001 (V. SIZE)
Specification	• Normal picture amplitude

1) Observing the viewfinder screen, adjust VR7001 for normal picture amplitude.

3.3.4 Brightness

Subject	• –
Mode	• EE • Lens closed
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7002 (BRIGHT)
Specification	• The CRT raster is just barely visible

1) Close the lens with the cap and adjust VR7002 so that the raster of the CRT is just visible in the E. VF.

3.3.5 Focus

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7003 (FOCUS)
Specification	• The center area is clear and defined

1) While observing the viewfinder screen, adjust VR7003 so that the picture at the central area of the screen is clear and defined.

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

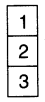
Unless otherwise specified.

1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

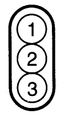
2. Indications of control voltage

AUX : Active only at high
$\overline{\text{AUX}}$ or AUX(L) : Active at low

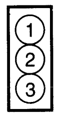
3. Interpreting Connector indications



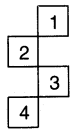
Removable connector



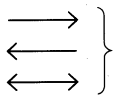
Wire soldered directly on board



Non-removable Board connector



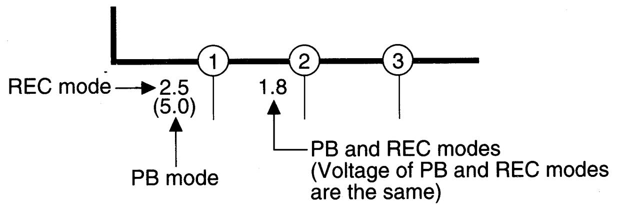
Board to Board



Connected pattern on board

4. Voltage measurement

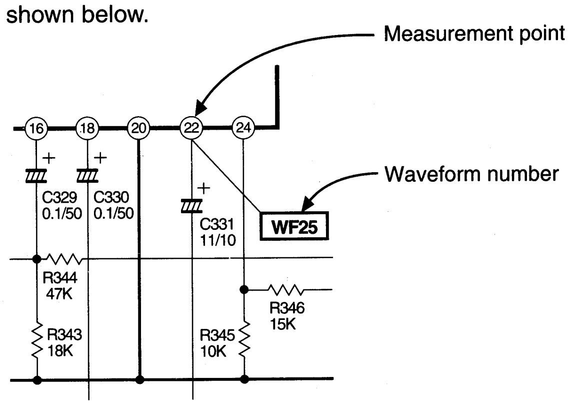
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.


1
2
3
REC mode
2.5
(5.0)
1.8
PB mode
PB and REC modes
(Voltage of PB and REC modes are the same)

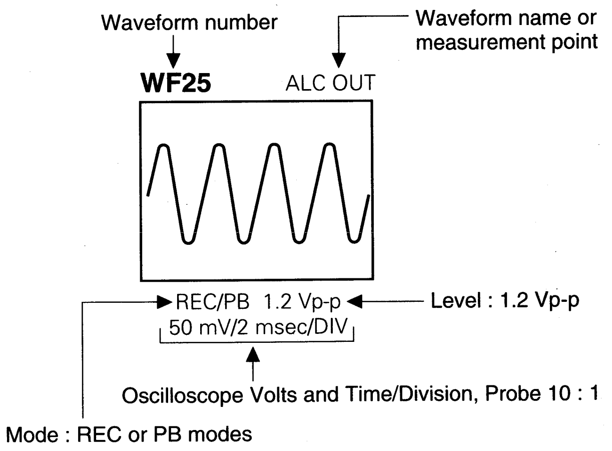
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.


Measurement point
16
18
20
22
24
C329
0.1/50
C330
0.1/50
C331
11/10
WF25
Waveform number
R344
47K
R343
18K
R345
10K
R346
15K

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
Level : 1.2 Vp-p
50 mV/2 msec/DIV
Oscilloscope Volts and Time/Division, Probe 10 : 1
Mode : REC or PB modes

6. Signal path Symbols

The arrows indicate the signal path as follows.

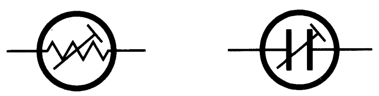
- ⇨ Playback signal path
- ➡ Playback and recording signal path
- ➡ Recording signal path (including E-E signal path)
- ⇨▷ Capstan servo path
- ➡▶ Drum servo path

(Example)

- ⇨ R-Y Playback R-Y signal path
- ➡ Y Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

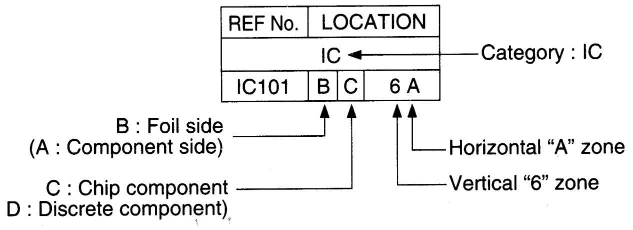
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

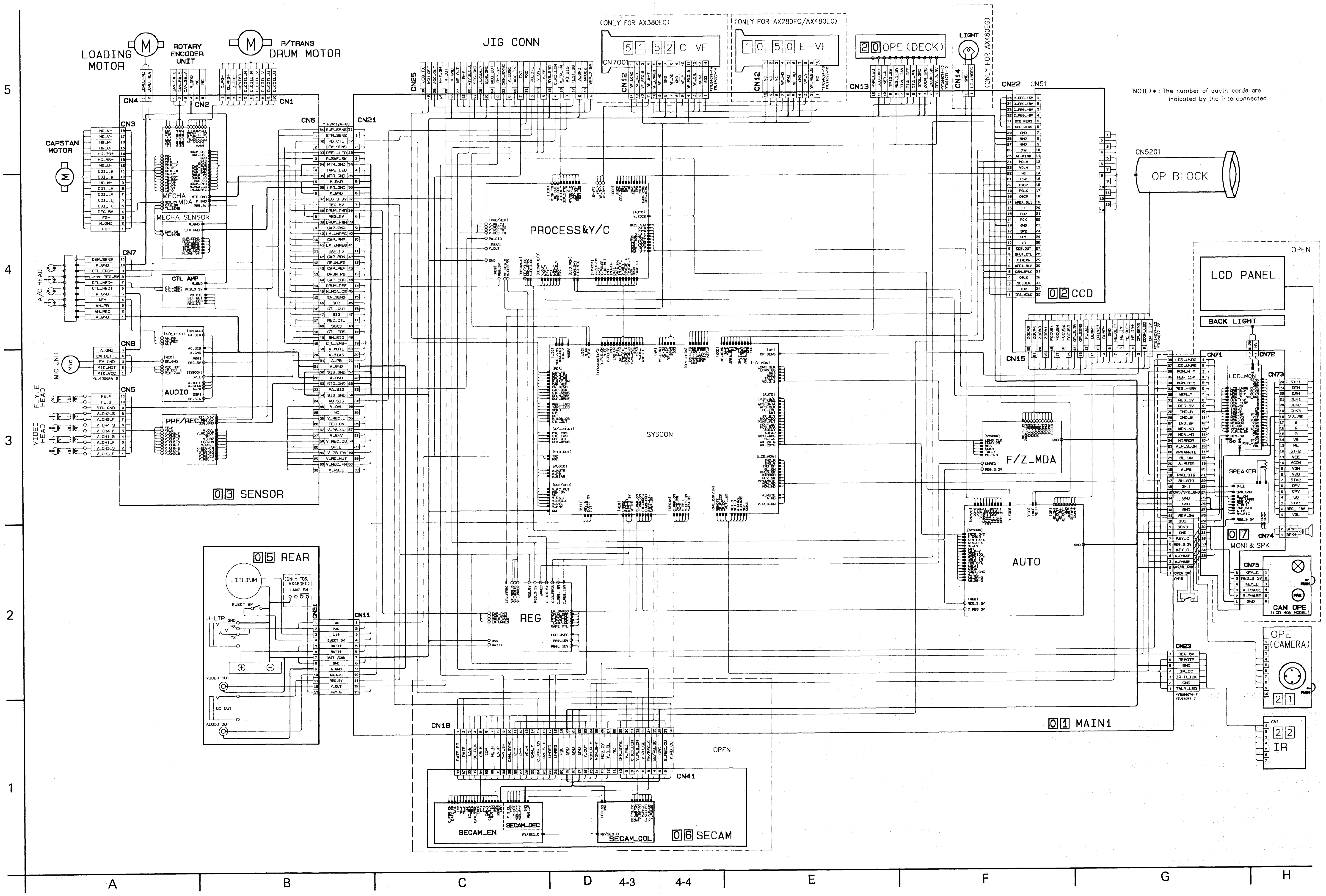
2. Parts location guides

Parts location are indicated by guide scale on the circuit board.

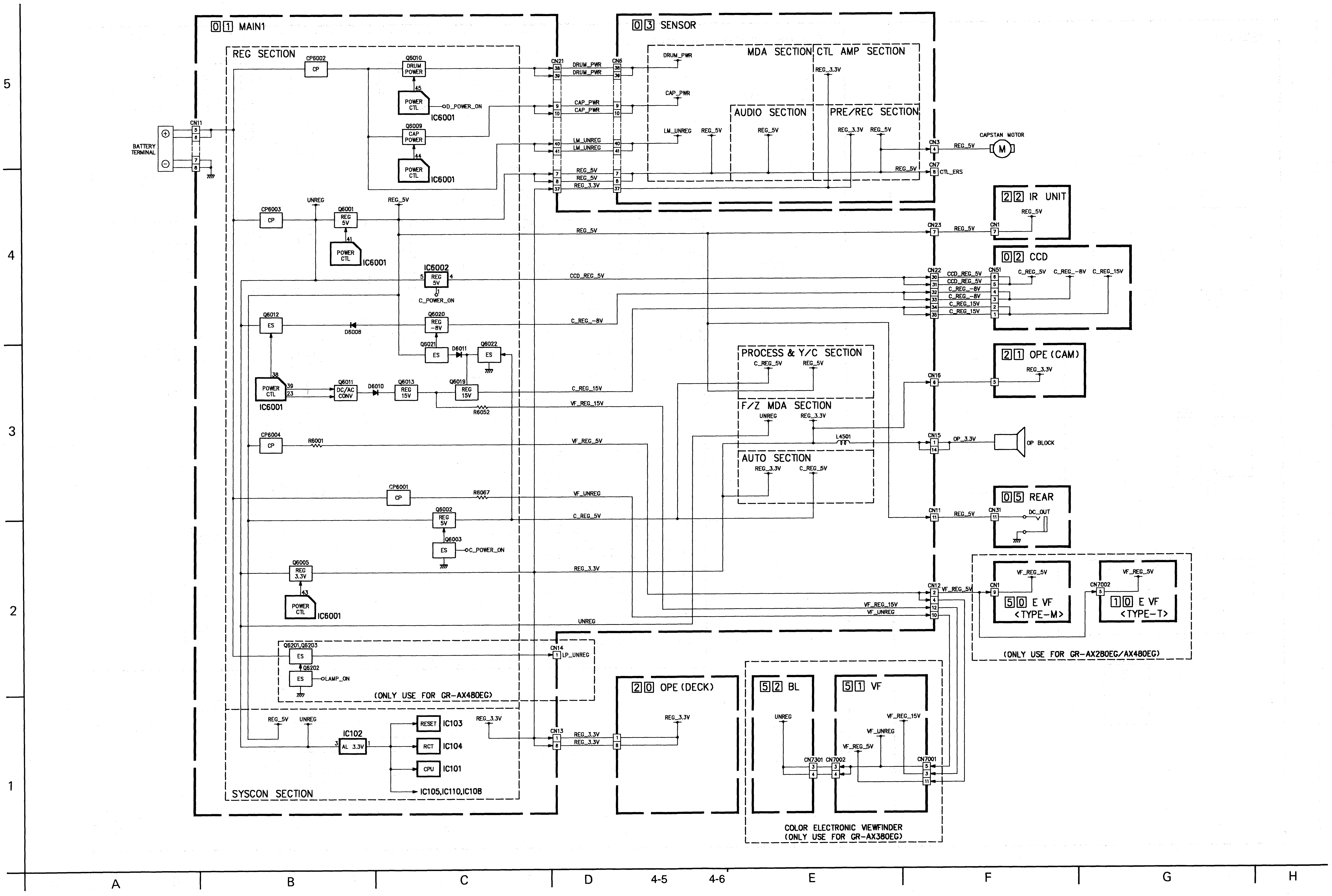

REF No.
LOCATION
IC
Category : IC
IC101
B
C
6 A
B : Foil side
(A : Component side)
C : Chip component
D : Discrete component)
Horizontal "A" zone
Vertical "6" zone

Note:
For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS

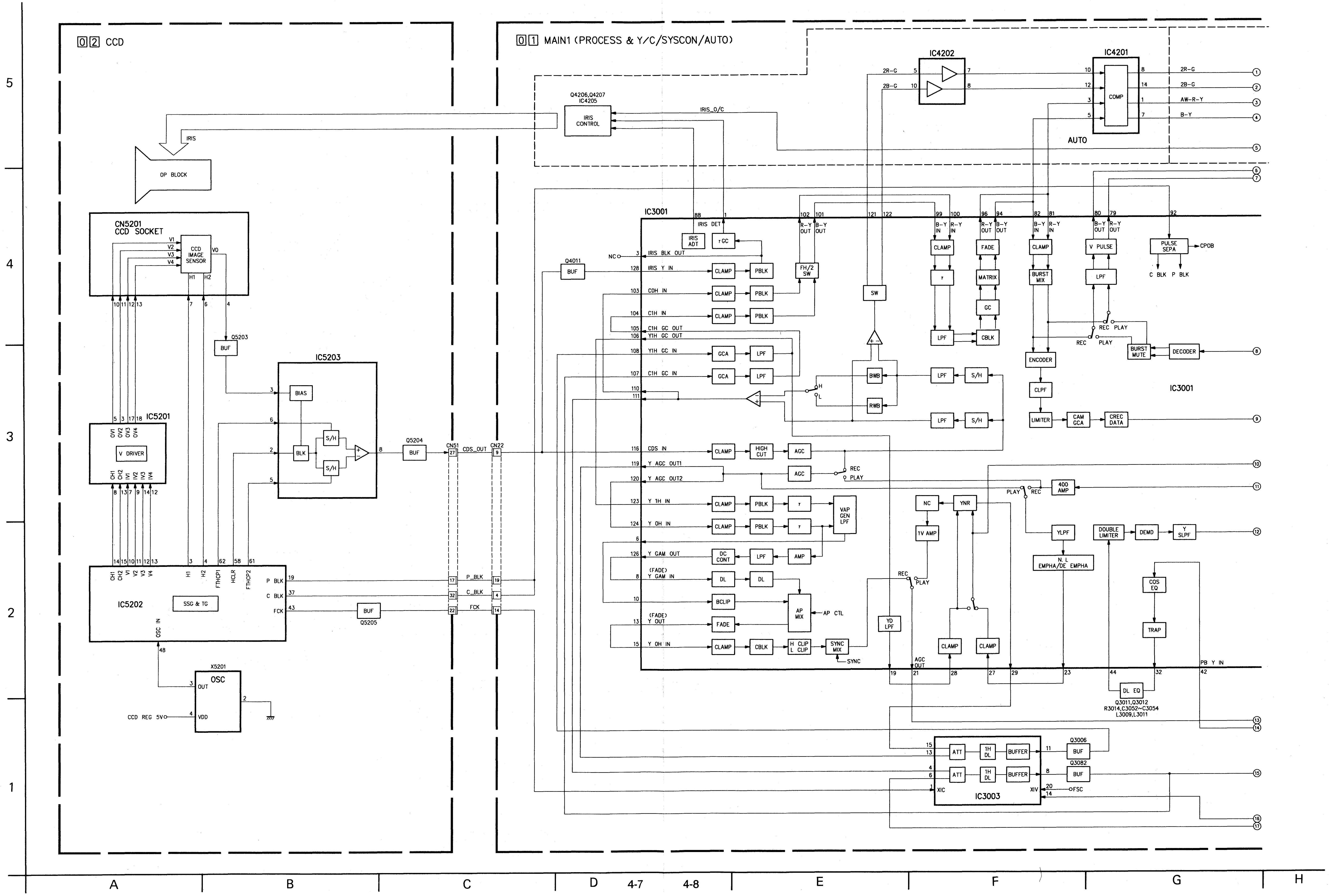

LOADING MOTOR
ROTARY ENCODER UNIT
R/TRANS DRUM MOTOR
JIG CONN
(ONLY FOR AX380EG)
51 52 C-VF
CN7001
(ONLY FOR AX280EG/AX480EG)
10 50 E-VF
20 OPE (DECK)
LIGHT
(ONLY FOR AX480EG)
CN4
CN2
CN1
CN3
CN6
CN21
CN25
CN12
CN13
CN14
CN22
CN51
NOTE) * : The number of pacth cords are indicated by the interconnected.
CAPSTAN MOTOR
MECHA MDA
MECHA SENSOR
CN7
A/C HEAD
CTL AMP
CN8
MIC UNIT
AUDIO
CN5
FLY.E HEAD
VIDEO HEAD
PRE/REC
03 SENSOR
PROCESS&Y/C
SYSCON
CN5201
OP BLOCK
02 CCD
OPEN
LCD PANEL
BACK LIGHT
CN15
CN71
CN72
LCD_MON
CN73
SPEAKER
07 MONI & SPK
CN74
CN75
CAM OPE (LCD MON MODEL)
F/Z_MDA
AUTO
05 REAR
LITHIUM
(ONLY FOR AX480EG) LAMP SW
EJECT SW
J-LIP
CN31
CN11
VIDEO OUT
DC OUT
AUDIO OUT
REG
CN23
OPE (CAMERA)
21
CN1
22 IR
01 MAIN1
CN18
OPEN
CN41
SECAM_EN
SECAM_DEC
SECAM_COL
06 SECAM
A
B
C
D
E
F
G
H
1
2
3
4
5

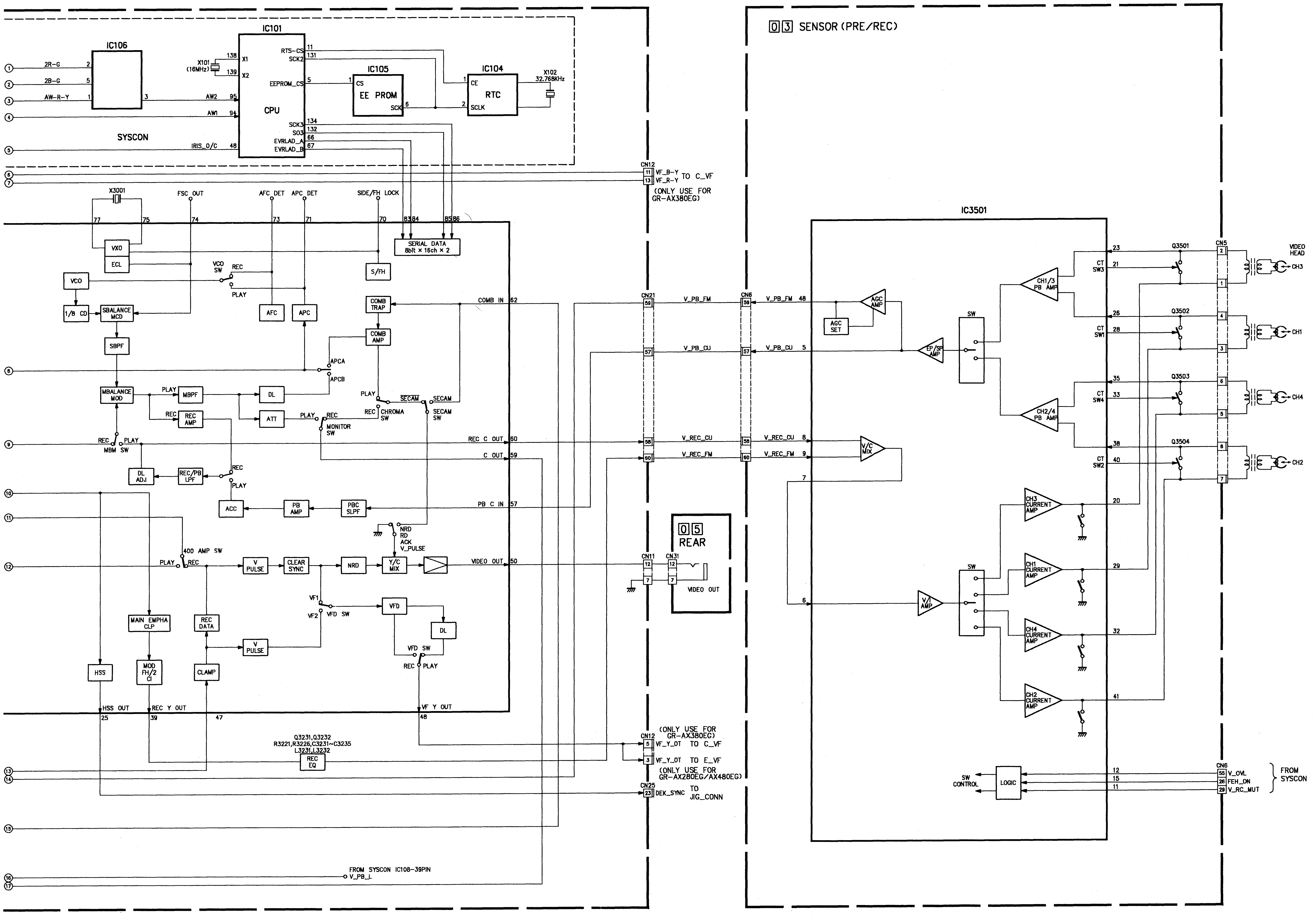
4.2 POWER SYSTEM BLOCK DIAGRAM



01 MAIN1
REG SECTION
SYSCON SECTION
03 SENSOR
MDA SECTION
CTL AMP SECTION
AUDIO SECTION
PRE/REC SECTION
22 IR UNIT
02 CCD
21 OPE (CAM)
05 REAR
50 E VF <TYPE-M>
10 E VF <TYPE-T>
(ONLY USE FOR GR-AX280EG/AX480EG)
20 OPE (DECK)
52 BL
51 VF
COLOR ELECTRONIC VIEWFINDER
(ONLY USE FOR GR-AX380EG)
PROCESS & Y/C SECTION
F/Z MDA SECTION
AUTO SECTION
BATTERY TERMINAL
CN11
CP6002
CP6003
CP6004
CP6001
CP
Q6010 DRUM POWER
Q6009 CAP POWER
POWER CTL
IC6001
D_POWER_ON
Q6001 REG 5V
IC6002 REG 5V
C_POWER_ON
Q6012 ES
Q6020 REG -8V
D6008
Q6021 ES
D6011
Q6022 ES
Q6011 DC/AC CONV
D6010
Q6013 REG 15V
Q6019 REG 15V
R6052
R6001
R6067
Q6002 REG 5V
Q6003 ES
C_POWER_ON
Q6005 REG 3.3V
Q6201,Q6203 ES
Q6202 ES
LAMP_ON
(ONLY USE FOR GR-AX480EG)
IC102 AL 3.3V
RESET IC103
RCT IC104
CPU IC101
IC105,IC110,IC108
UNREG
REG_5V
REG_3.3V
DRUM_PWR
CAP_PWR
LM_UNREG
CCD_REG_5V
C_REG_-8V
C_REG_15V
C_REG_5V
VF_REG_15V
VF_REG_5V
VF_UNREG
LP_UNREG
OP_3.3V
CTL_ERS
CN21
CN6
CN3
CN7
CN23
CN1
CN22
CN51
CN16
CN15
CN11
CN31
CN12
CN7002
CN14
CN13
CN7301
CN7001
CAPSTAN MOTOR
M
L4501
OP BLOCK
DC_OUT
A
B
C
D
E
F
G
H
5
4
3
2
1

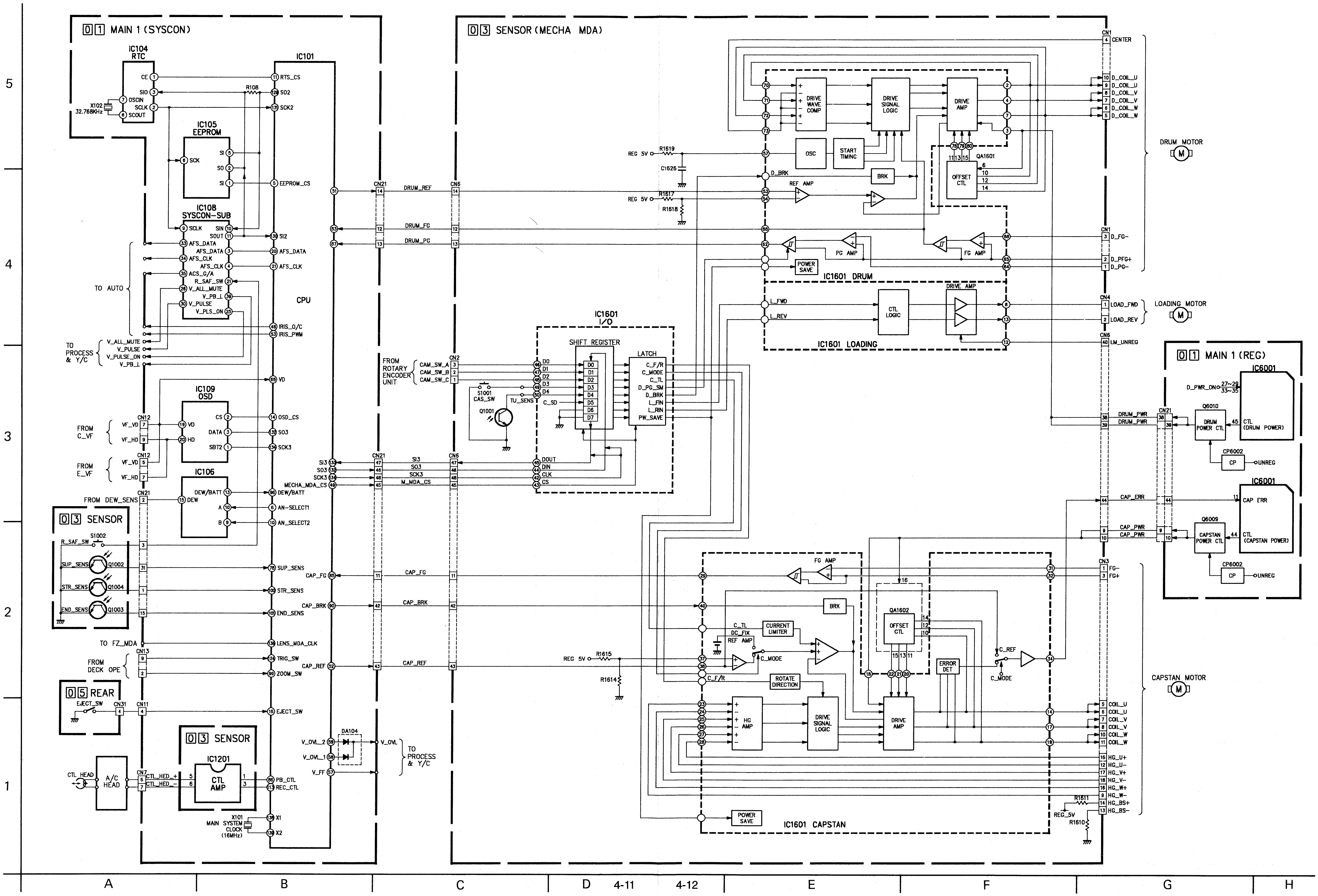
4.3 PROCESS AND Y/C BLOCK DIAGRAM


02 CCD
01 MAIN1 (PROCESS & Y/C/SYSCON/AUTO)
OP BLOCK
IRIS
CN5201
CCD SOCKET
CCD IMAGE SENSOR
V1
V2
V3
V4
VO
H1
H2
Q5203
BUF
IC5203
BIAS
BLK
S/H
IC5201
V DRIVER
IC5202
SSG & TG
P BLK
C BLK
FCK
OSC IN
X5201
OSC
OUT
VDD
CCD REG 5V
Q5204
BUF
Q5205
CN51
CN22
CDS_OUT
P_BLK
C_BLK
Q4206,Q4207
IC4205
IRIS CONTROL
IRIS_O/C
IC4202
2R-G
2B-G
IC4201
COMP
AW-R-Y
B-Y
AUTO
Q4011
BUF
IC3001
IRIS ADT
IRIS DET
γGC
IRIS BLK OUT
IRIS Y IN
CDH IN
C1H IN
C1H GC OUT
Y1H GC OUT
Y1H GC IN
C1H GC IN
CLAMP
PBLK
GCA
LPF
FH/2 SW
R-Y OUT
B-Y OUT
SW
BWB
RWB
B-Y IN
R-Y IN
γ
S/H
FADE
MATRIX
GC
CBLK
BURST MIX
ENCODER
CLPF
LIMITER
CAM GCA
CREC DATA
V PULSE
REC
PLAY
BURST MUTE
DECODER
PULSE SEPA
CPOB
C BLK
P BLK
CDS IN
HIGH CUT
AGC
Y AGC OUT1
Y AGC OUT2
Y 1H IN
Y OH IN
VAP GEN LPF
Y GAM OUT
DC CONT
AMP
(FADE) Y GAM IN
DL
BCLIP
AP MIX
AP CTL
(FADE) Y OUT
H CLIP L CLIP
SYNC MIX
SYNC
NC
YNR
1V AMP
YD LPF
AGC OUT
400 AMP
YLPF
N.L EMPHA/DE EMPHA
DOUBLE LIMITER
DEMD
Y SLPF
COS EQ
TRAP
PB Y IN
DL EQ
Q3011,Q3012
R3014,C3052~C3054
L3009,L3011
IC3003
ATT
1H DL
BUFFER
Q3006
Q3082
BUF
XIC
XIV
FSC
A
B
C
D
E
F
G
H
1
2
3
4
5

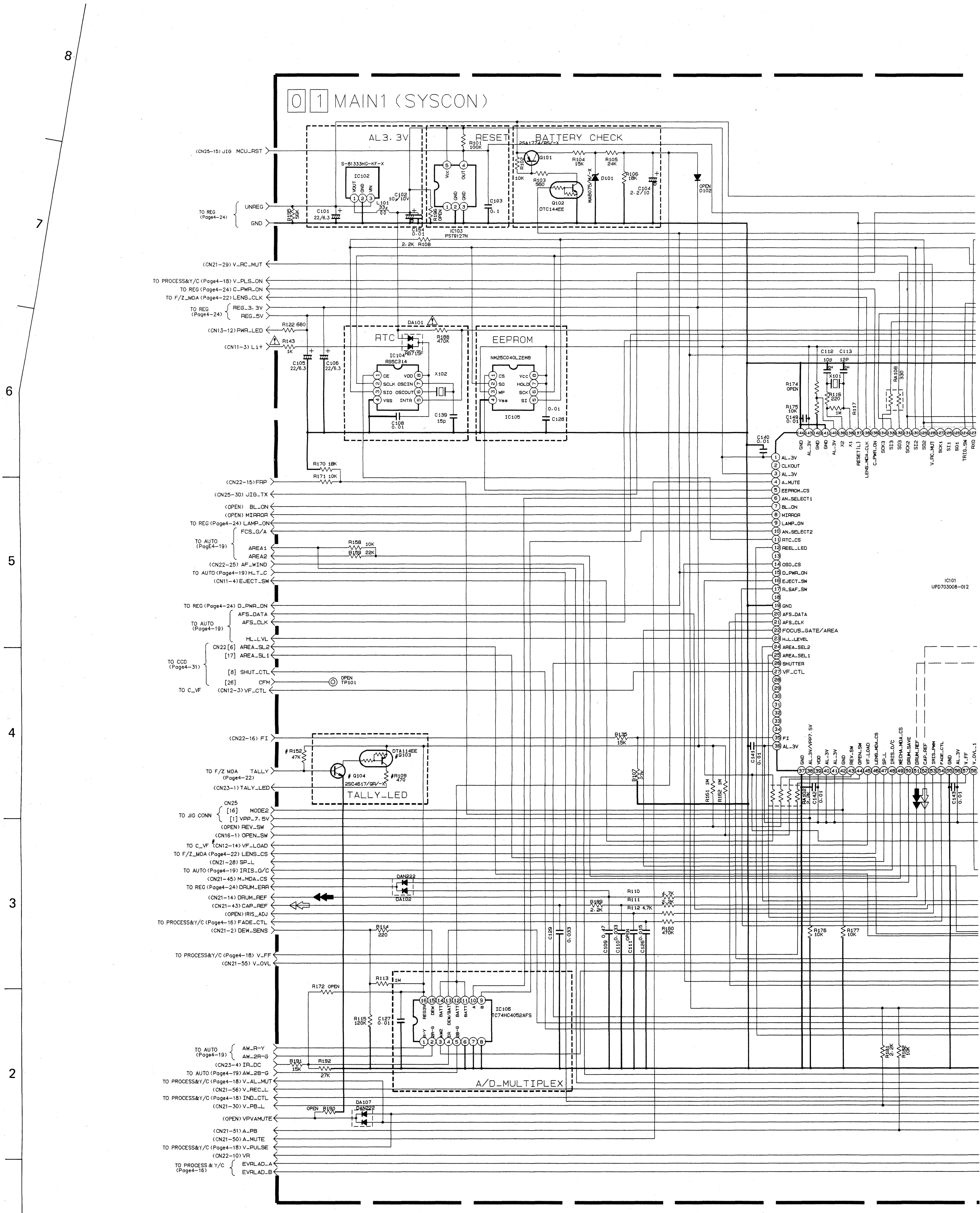


IC106
IC101
CPU
SYSCON
2R-G
2B-G
AW-R-Y
AW2
AW1
IRIS_O/C
X101 (16MHz)
X1
X2
RTS-CS
SCK2
EEPROM_CS
SCK3
SO3
EVRLAD_A
EVRLAD_B
IC105
EE PROM
CS
SCK
IC104
RTC
CE
SCLK
X102 32.768KHz
CN12
VF_B-Y
VF_R-Y
TO C_VF
(ONLY USE FOR GR-AX380EG)
X3001
FSC OUT
AFC DET
APC DET
SIDE/FH LOCK
SERIAL DATA 8bit × 16ch × 2
VXO
ECL
VCO
VCO SW
REC
PLAY
S/FH
1/8 CD
SBALANCE MOD
SBPF
AFC
APC
COMB TRAP
COMB AMP
COMB IN
APCA
APCB
MBALANCE MOD
MBPF
DL
REC AMP
ATT
CHROMA SW
MONITOR SW
SECAM
SECAM SW
MBM SW
REC C OUT
C OUT
DL ADJ
REC/PB LPF
ACC
PB AMP
PBC SLPF
PB C IN
NRD
RD
ACK
V_PULSE
400 AMP SW
V PULSE
CLEAR SYNC
Y/C MIX
VIDEO OUT
VF1
VF2
VFD SW
VFD
MAIN EMPHA CLP
REC DATA
MOD FH/2 Cl
HSS
CLAMP
HSS OUT
REC Y OUT
VF Y OUT
Q3231,Q3232
R3221,R3226,C3231~C3235
L3231,L3232
REC EQ
(ONLY USE FOR GR-AX380EG)
VF_Y_OT TO C_VF
VF_Y_OT TO E_VF
(ONLY USE FOR GR-AX280EG/AX480EG)
CN25
DEK_SYNC
TO JIG_CONN
FROM SYSCON IC108-39PIN
V_PB_L
CN21
CN6
V_PB_FM
V_PB_CU
V_REC_CU
V_REC_FM
05 REAR
CN11
CN31
VIDEO OUT
03 SENSOR (PRE/REC)
IC3501
AGC AMP
AGC SET
EP/SP AMP
SW
V/C MIX
CH1/3 PB AMP
CH2/4 PB AMP
CT SW3
CT SW1
CT SW4
CT SW2
Q3501
Q3502
Q3503
Q3504
CN5
VIDEO HEAD
CH3
CH1
CH4
CH2
V/I AMP
CH3 CURRENT AMP
CH1 CURRENT AMP
CH4 CURRENT AMP
CH2 CURRENT AMP
SW CONTROL
LOGIC
V_OVL
FEH_ON
V_RC_MUT
FROM SYSCON

4.4 SYSCON/MDA BLOCK DIAGRAM


01 MAIN 1 (SYSCON)
IC104 RTC
CE
SIO
OSCIN
SCLK
SCOUT
X102 32.768KHz
R108
IC101
RTS_CS
SO2
SCK2
IC105 EEPROM
SCK
SI
SO
EEPROM_CS
IC108 SYSCON-SUB
SCLK
SIN
SOUT
SI2
AFS_DATA
AFS_CLK
ACS_G/A
R_SAF_SW
V_ALL_MUTE
V_PB_L
V_PULSE
V_PLS_ON
TO AUTO
CPU
IRIS_O/C
IRIS_PWM
TO PROCESS & Y/C
V_PULSE_ON
VD
IC109 OSD
CS
DATA
SBT2
OSD_CS
SO3
SCK3
FROM C_VF
FROM E_VF
VF_VD
VF_HD
CN12
IC106
DEW/BATT
DEW
AN-SELECT1
AN_SELECT2
FROM DEW_SENS
CN21
03 SENSOR
S1002
R_SAF_SW
SUP_SENS
STR_SENS
END_SENS
Q1002
Q1004
Q1003
TO FZ_MDA
LENS_MDA_CLK
FROM DECK OPE
CN13
TRIG_SW
ZOOM_SW
05 REAR
EJECT_SW
CN31
CN11
CTL_HEAD
A/C HEAD
CN7
CTL_HED_+
CTL_HED_-
IC1201
CTL AMP
PB_CTL
REC_CTL
X101 MAIN SYSTEM CLOCK (16MHz)
X1
X2
DA104
V_OVL_2
V_OVL_1
V_OVL
V_FF
TO PROCESS & Y/C
SI3
SO3
SCK3
MECHA_MDA_CS
M_MDA_CS
CAP_FG
CAP_BRK
CAP_REF
DRUM_REF
DRUM_FG
DRUM_PG
CN6
03 SENSOR (MECHA MDA)
FROM ROTARY ENCODER UNIT
CAM_SW_A
CAM_SW_B
CAM_SW_C
CN2
S1001 CAS_SW
Q1001
TU_SENS
C_SD
IC1601 I/O
SHIFT REGISTER
LATCH
D0
D1
D2
D3
D4
D5
D6
D7
C_F/R
C_MODE
C_TL
D_PG_SM
D_BRK
L_FIN
L_RIN
PW_SAVE
DOUT
DIN
CLK
CS
REG 5V
R1619
C1626
R1617
R1618
D_BRK
REF AMP
DRIVE WAVE COMP
DRIVE SIGNAL LOGIC
DRIVE AMP
OSC
START TIMING
BRK
QA1601
OFFSET CTL
PG AMP
FG AMP
POWER SAVE
IC1601 DRUM
CN1
CENTER
D_COIL_U
D_COIL_V
D_COIL_W
D_FG-
D_PFG+
D_PG-
DRUM MOTOR
L_FWD
L_REV
CTL LOGIC
DRIVE AMP
IC1601 LOADING
CN4
LOAD_FWD
LOAD_REV
LOADING MOTOR
CN5
LM_UNREG
01 MAIN 1 (REG)
IC6001
D_PWR_ON
Q6010
DRUM POWER CTL
CTL (DRUM POWER)
DRUM_PWR
CP6002
CP
UNREG
CAP_ERR
CAP ERR
CAP_PWR
Q6009
CAPSTAN POWER CTL
CTL (CAPSTAN POWER)
FG AMP
QA1602
OFFSET CTL
C_TL
DC_FIX
REF AMP
CURRENT LIMITER
C_MODE
C_REF
ERROR DET
R1615
R1614
C_F/R
ROTATE DIRECTION
HG AMP
DRIVE SIGNAL LOGIC
DRIVE AMP
POWER SAVE
IC1601 CAPSTAN
CN3
FG-
FG+
COIL_U
COIL_V
COIL_W
HG_U+
HG_U-
HG_V+
HG_V-
HG_W+
HG_W-
HG_BS+
HG_BS-
R1611
REG_5V
R1610
CAPSTAN MOTOR
A
B
C
D
E
F
G
H
1
2
3
4
5

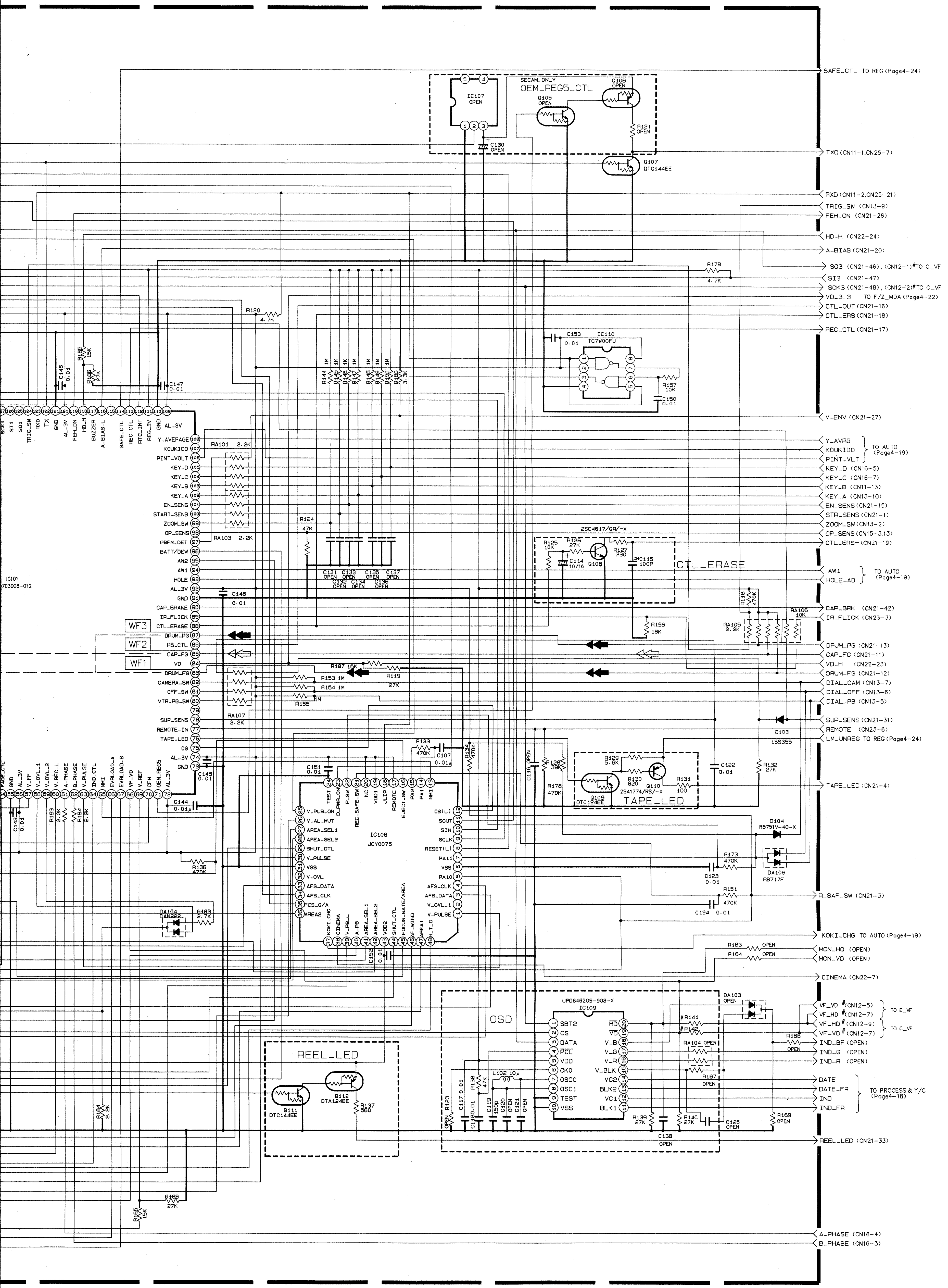
4.5 SYSCON SCHEMATIC DIAGRAM


01 MAIN1 (SYSCON)
AL3.3V
RESET
BATTERY CHECK
RTC
EEPROM
TALLY_LED
A/D_MULTIPLEX
IC102 S-81333HG-KF-X
IC103 PST9127N
IC104 RS5C314
IC105 NM25C040LZEM8
IC106 TC74HC4052AFS
IC101 UPD703008-012
Q101 2SA1774/RS/-X
Q102 DTC144EE
Q103 DTA114EE
Q104 2SC4617/QR/-X
D101 MA8075/M/-X
DA101 RB715F
DAN222
DA102
DA107
X101
X102
(CN25-15) JIG MCU_RST
TO REG (Page4-24) UNREG
GND
(CN21-29) V_RC_MUT
TO PROCESS&Y/C (Page4-18) V_PLS_ON
TO REG (Page4-24) C_PWR_ON
TO F/Z_MDA (Page4-22) LENS_CLK
TO REG (Page4-24) REG_3.3V
REG_5V
(CN13-12) PWR_LED
(CN11-3) Li+
(CN22-15) FRP
(CN25-30) JIG_TX
(OPEN) BL_ON
(OPEN) MIRROR
TO REG (Page4-24) LAMP_ON
TO AUTO (PagE4-19) FCS_G/A
AREA1
AREA2
(CN22-25) AF_WIND
TO AUTO (Page4-19) H_T_C
(CN11-4) EJECT_SW
TO REG (Page4-24) D_PWR_ON
TO AUTO (Page4-19) AFS_DATA
AFS_CLK
HL_LVL
TO CCD (Page4-31) CN22 [6] AREA_SL2
[17] AREA_SL1
[8] SHUT_CTL
[26] CFM
TO C_VF (CN12-3) VF_CTL
OPEN TP101
(CN22-16) FI
TO F/Z MDA (Page4-22) TALLY
(CN23-1) TALY_LED
TO JIG CONN CN25 [16] MODE2
[1] VPP_7.5V
(OPEN) REV_SW
(CN16-1) OPEN_SW
TO C_VF (CN12-14) VF_LOAD
TO F/Z_MDA (Page4-22) LENS_CS
(CN21-28) SP_L
TO AUTO (Page4-19) IRIS_O/C
(CN21-45) M_MDA_CS
TO REG (Page4-24) DRUM_ERR
(CN21-14) DRUM_REF
(CN21-43) CAP_REF
(OPEN) IRIS_ADJ
TO PROCESS&Y/C (Page4-16) FADE_CTL
(CN21-2) DEW_SENS
TO PROCESS&Y/C (Page4-18) V_FF
(CN21-55) V_OVL
TO AUTO (Page4-19) AW_R-Y
AW_2R-G
(CN23-4) IR_DC
TO AUTO (Page4-19) AW_2B-G
TO PROCESS&Y/C (Page4-18) V_AL_MUT
(CN21-56) V_REC_L
TO PROCESS&Y/C (Page4-18) IND_CTL
(CN21-30) V_PB_L
(OPEN) VPVAMUTE
(CN21-51) A_PB
(CN21-50) A_MUTE
TO PROCESS&Y/C (Page4-18) V_PULSE
(CN22-10) VR
TO PROCESS & Y/C (Page4-16) EVRLAD_A
EVRLAD_B
1 AL_3V
2 CLKOUT
3 AL_3V
4 A_MUTE
5 EEPROM_CS
6 AN_SELECT1
7 BL_ON
8 MIRROR
9 LAMP_ON
10 AN_SELECT2
11 RTC_CS
12 REEL_LED
14 OSD_CS
15 D_PWR_ON
16 EJECT_SW
17 R_SAF_SW
19 GND
20 AFS_DATA
21 AFS_CLK
22 FOCUS_GATE/AREA
23 H_L_LEVEL
24 AREA_SEL2
25 AREA_SEL1
26 SHUTTER
27 VF_CTL
35 FI
36 AL_3V
8
7
6
5
4
3
2
1
A
B
C
D
E
F

NOTES : 1. COMPARISON CHART OF MODELS & MARKS (#)

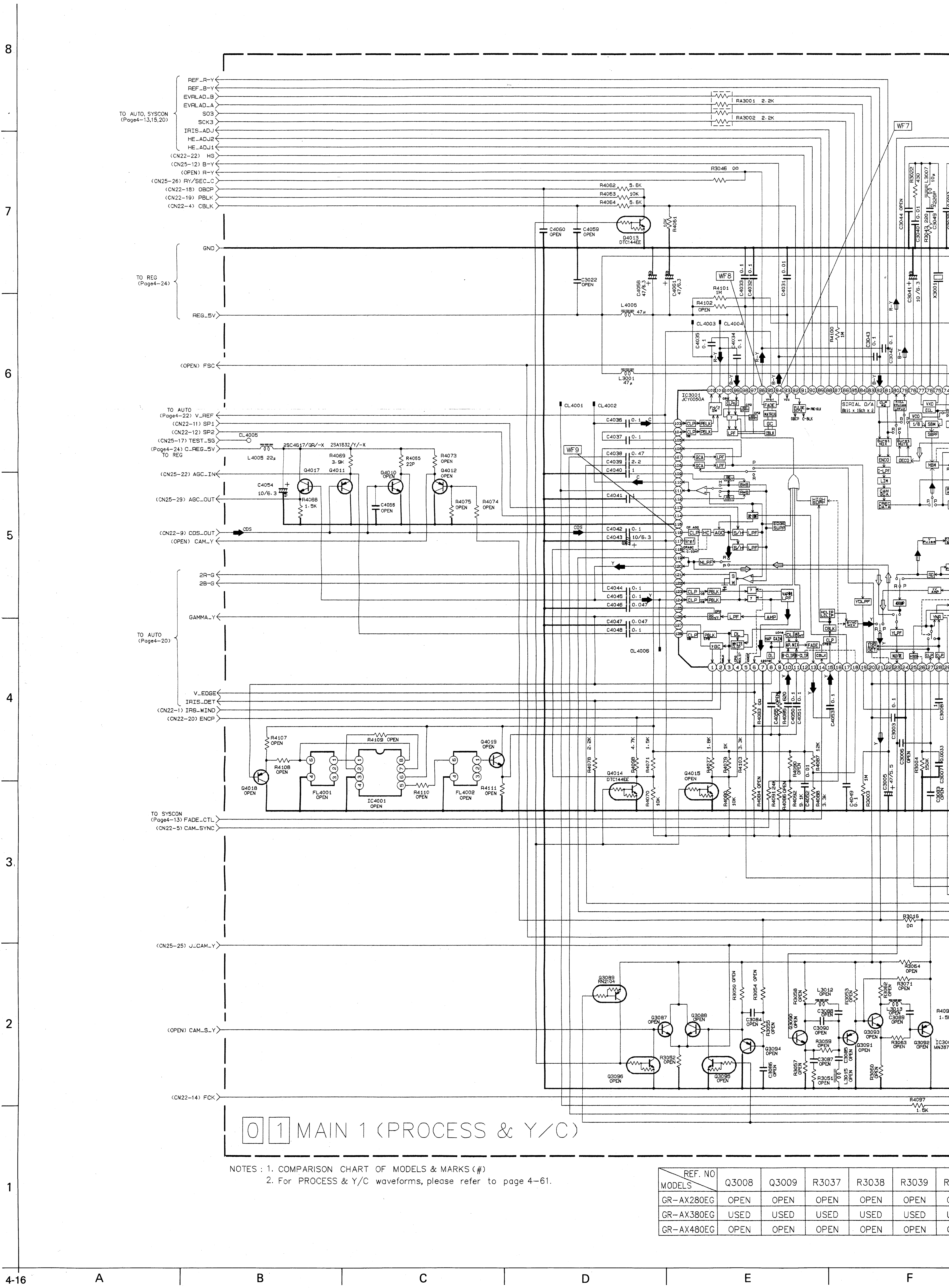
2. For SYSCON waveforms, please refer to page 4–61.

MODELS \ REF. NO	Q103	Q104	R109	R141	R142	R152	CN12
GR–AX280EG	OPEN	OPEN	OPEN	15K	15K	OPEN	10pin
GR–AX380EG	OPEN	OPEN	OPEN	0Ω	0Ω	OPEN	14pin
GR–AX480EG	USED	USED	USED	15K	15K	USED	10pin


SAFE_CTL TO REG (Page4-24)
TXD (CN11-1,CN25-7)
RXD (CN11-2,CN25-21)
TRIG_SW (CN13-9)
FEH_ON (CN21-26)
HD_H (CN22-24)
A_BIAS (CN21-20)
SO3 (CN21-46), (CN12-1)# TO C_VF
SI3 (CN21-47)
SCK3 (CN21-48), (CN12-2)# TO C_VF
VD_3.3 TO F/Z_MDA (Page4-22)
CTL_OUT (CN21-16)
CTL_ERS (CN21-18)
REC_CTL (CN21-17)
V_ENV (CN21-27)
Y_AVRG
KOUKIDO
PINT_VLT
TO AUTO (Page4-19)
KEY_D (CN16-5)
KEY_C (CN16-7)
KEY_B (CN11-13)
KEY_A (CN13-10)
EN_SENS (CN21-15)
STR_SENS (CN21-1)
ZOOM_SW (CN13-2)
OP_SENS (CN15-3,13)
CTL_ERS- (CN21-19)
AW1
HOLE_AD
TO AUTO (Page4-19)
CAP_BRK (CN21-42)
IR_FLICK (CN23-3)
DRUM_PG (CN21-13)
CAP_FG (CN21-11)
VD_H (CN22-23)
DRUM_FG (CN21-12)
DIAL_CAM (CN13-7)
DIAL_OFF (CN13-6)
DIAL_PB (CN13-5)
SUP_SENS (CN21-31)
REMOTE (CN23-6)
LM_UNREG TO REG (Page4-24)
TAPE_LED (CN21-4)
R_SAF_SW (CN21-3)
KOKI_CHG TO AUTO (Page4-19)
MON_HD (OPEN)
MON_VD (OPEN)
CINEMA (CN22-7)
VF_VD # (CN12-5)
VF_HD # (CN12-7)
TO E_VF
VF_HD # (CN12-9)
VF_VD # (CN12-7)
TO C_VF
IND_BF (OPEN)
IND_G (OPEN)
IND_R (OPEN)
DATE
DATE_FR
IND
IND_FR
TO PROCESS & Y/C (Page4-18)
REEL_LED (CN21-33)
A_PHASE (CN16-4)
B_PHASE (CN16-3)
SECAM_ONLY
OEM_REG5_CTL
IC107 OPEN
Q105 OPEN
Q106 OPEN
R121 OPEN
C130 OPEN
Q107 DTC144EE
IC110 TC7W00FU
C153 0.01
R157 10K
C150 0.01
R179 4.7K
R120 4.7K
C147 0.01
C148 0.01
IC101 703008-012
RA101 2.2K
RA103 2.2K
RA107 2.2K
R124 47K
2SC4617/QR/-X
CTL_ERASE
Q108
C114 10/16
C115 100P
R156 18K
RA105 2.2K
RA106 10K
R118 470K
WF1
WF2
WF3
R153 1M
R154 1M
R155 1M
R187 15K
R119 27K
IC108 JCY0075
R133 470K
C107 0.01
R134 470K
C151 0.01
TAPE_LED
Q109 DTC124EE
Q110 2SA1774/RS/-X
R129 5.6K
R130 820
R131 100
R132 27K
C122 0.01
D103 1SS355
D104 RB751V-40-X
DA105 RB717F
R173 470K
C123 0.01
R151 470K
C124 0.01
R163 OPEN
R164 OPEN
OSD
UPD6462GS-908-X IC109
DA103 OPEN
R168 OPEN
R167 OPEN
RA104 OPEN
R139 27K
R140 27K
R169 OPEN
C125 OPEN
C138 OPEN
L102 10μ
REEL_LED
Q111 DTC144EE
Q112 DTA124EE
R137 560
DA104 DAN222
R183 2.7K
R136 470K
C144 0.01
C145 0.01
C143 0.01
R166 27K
R165 15K
R184 2.2K

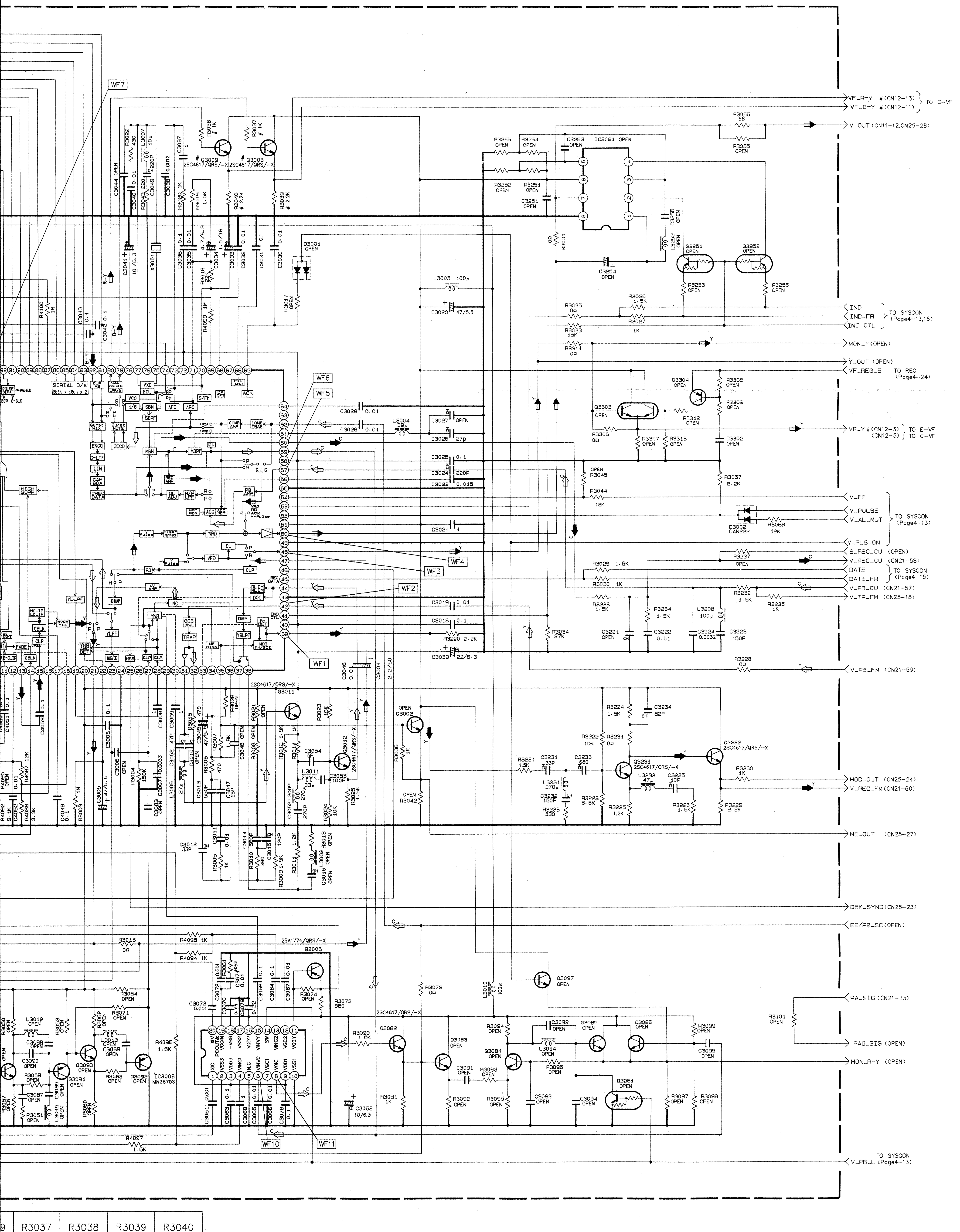
4.5 SYSCON SCHEMATIC DIAGRAM

4.6 PROCESS & Y/C SCHEMATIC DIAGRAM


8
7
6
5
4
3
2
1
A
B
C
D
E
F
TO AUTO, SYSCON (Page4-13,15,20)
REF_R-Y
REF_B-Y
EVRLAD_B
EVRLAD_A
SO3
SCK3
IRIS_ADJ
HE_ADJ2
HE_ADJ1
(CN22-22) HG
(CN25-12) B-Y
(OPEN) R-Y
(CN25-26) RY/SEC_C
(CN22-18) OBCP
(CN22-19) PBLK
(CN22-4) CBLK
TO REG (Page4-24)
GND
REG_5V
(OPEN) FSC
TO AUTO (Page4-22) V_REF
(CN22-11) SP1
(CN22-12) SP2
(CN25-17) TEST_SG
(Page4-24) C_REG_5V TO REG
(CN25-22) AGC_IN
(CN25-29) AGC_OUT
(CN22-9) CDS_OUT
(OPEN) CAM_Y
TO AUTO (Page4-20)
2R-G
2B-G
GAMMA_Y
V_EDGE
IRIS_DET
(CN22-1) IRS_WIND
(CN22-20) ENCP
TO SYSCON (Page4-13) FADE_CTL
(CN22-5) CAM_SYNC
(CN25-25) J_CAM_Y
(OPEN) CAM_S_Y
(CN22-14) FCK
IC3001 JCY0050A
IC4001 OPEN
FL4001 OPEN
FL4002 OPEN
Q4013 DTC144EE
Q4014 DTC144EE
Q4017 2SC4617/QR/-X
Q4011 2SA1832/Y/-X
X3001
WF7
WF8
WF9
0 1 MAIN 1 (PROCESS & Y/C)

NOTES : 1. COMPARISON CHART OF MODELS & MARKS (#)
2. For PROCESS & Y/C waveforms, please refer to page 4-61.

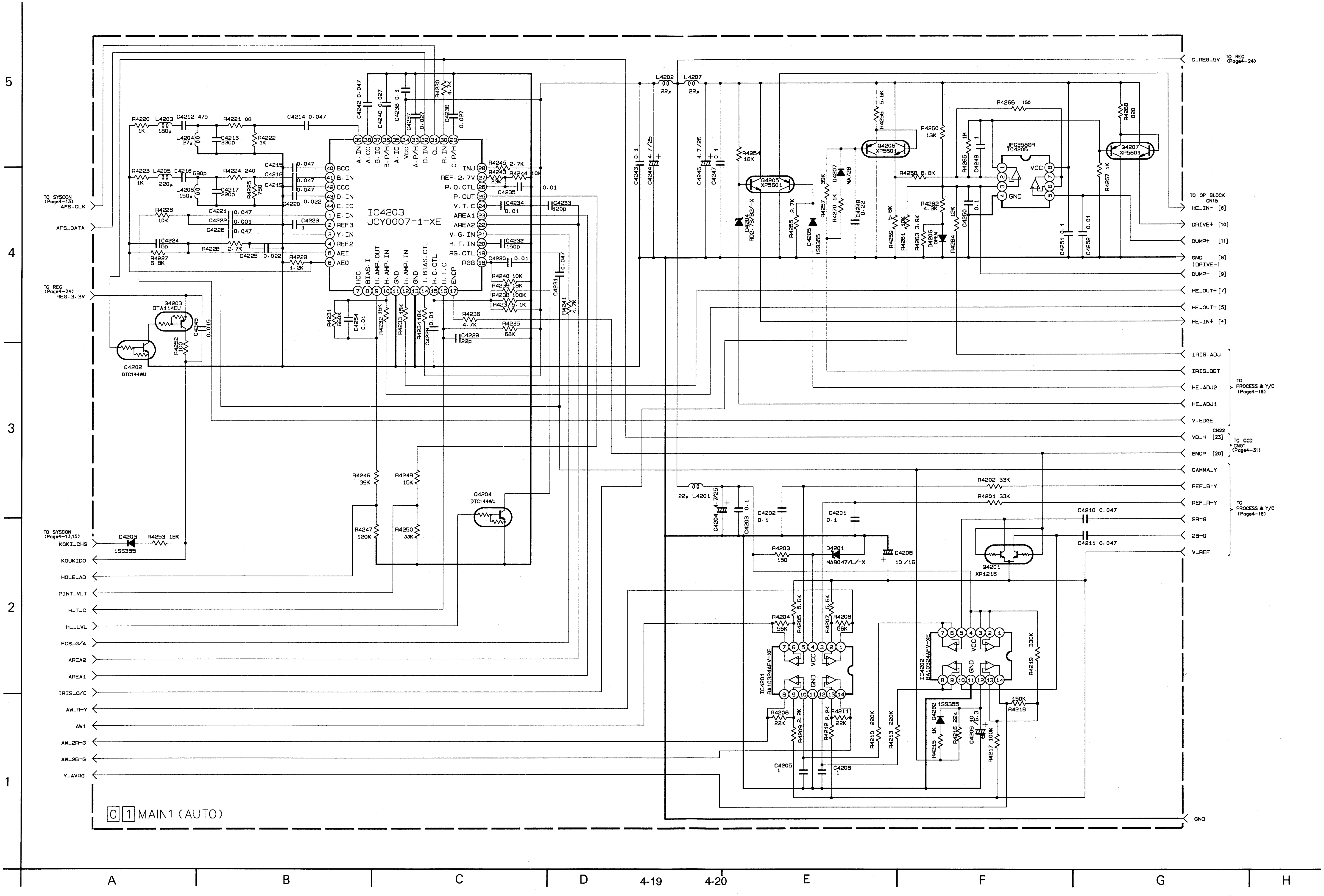
REF. NO / MODELS	Q3008	Q3009	R3037	R3038	R3039
GR-AX280EG	OPEN	OPEN	OPEN	OPEN	OPEN
GR-AX380EG	USED	USED	USED	USED	USED
GR-AX480EG	OPEN	OPEN	OPEN	OPEN	OPEN


VF_R-Y #(CN12-13)
VF_B-Y #(CN12-11)
TO C-VF
V_OUT (CN11-12,CN25-28)
IND
IND_FR
IND_CTL
TO SYSCON (Page4-13,15)
MON_Y (OPEN)
Y_OUT (OPEN)
VF_REG_5
TO REG (Page4-24)
VF_Y #(CN12-3) TO E-VF
(CN12-5) TO C-VF
V_FF
V_PULSE
V_AL_MUT
V_PLS_ON
TO SYSCON (Page4-13)
S_REC_CU (OPEN)
V_REC_CU (CN21-58)
DATE
DATE_FR
TO SYSCON (Page4-15)
V_PB_CU (CN21-57)
V_TP_FM (CN25-18)
V_PB_FM (CN21-59)
MOD_OUT (CN25-24)
V_REC_FM (CN21-60)
ME_OUT (CN25-27)
DEK_SYNC (CN25-23)
EE/PB_SC (OPEN)
PA_SIG (CN21-23)
PAO_SIG (OPEN)
MON_R-Y (OPEN)
TO SYSCON
V_PB_L (Page4-13)
IC3081 OPEN
IC3003 MN3875S
SIRIAL D/A 8bit x 16ch x 2
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF10
WF11
Q3009 2SC4617/QRS/-X
Q3011 2SC4617/QRS/-X
Q3012 2SC4617/QRS/-X
Q3231 2SC4617/QRS/-X
Q3232 2SC4617/QRS/-X
Q3082 2SC4617/QRS/-X
Q3006 2SA1774/QRS/-X
D3002 DAN222
X3001

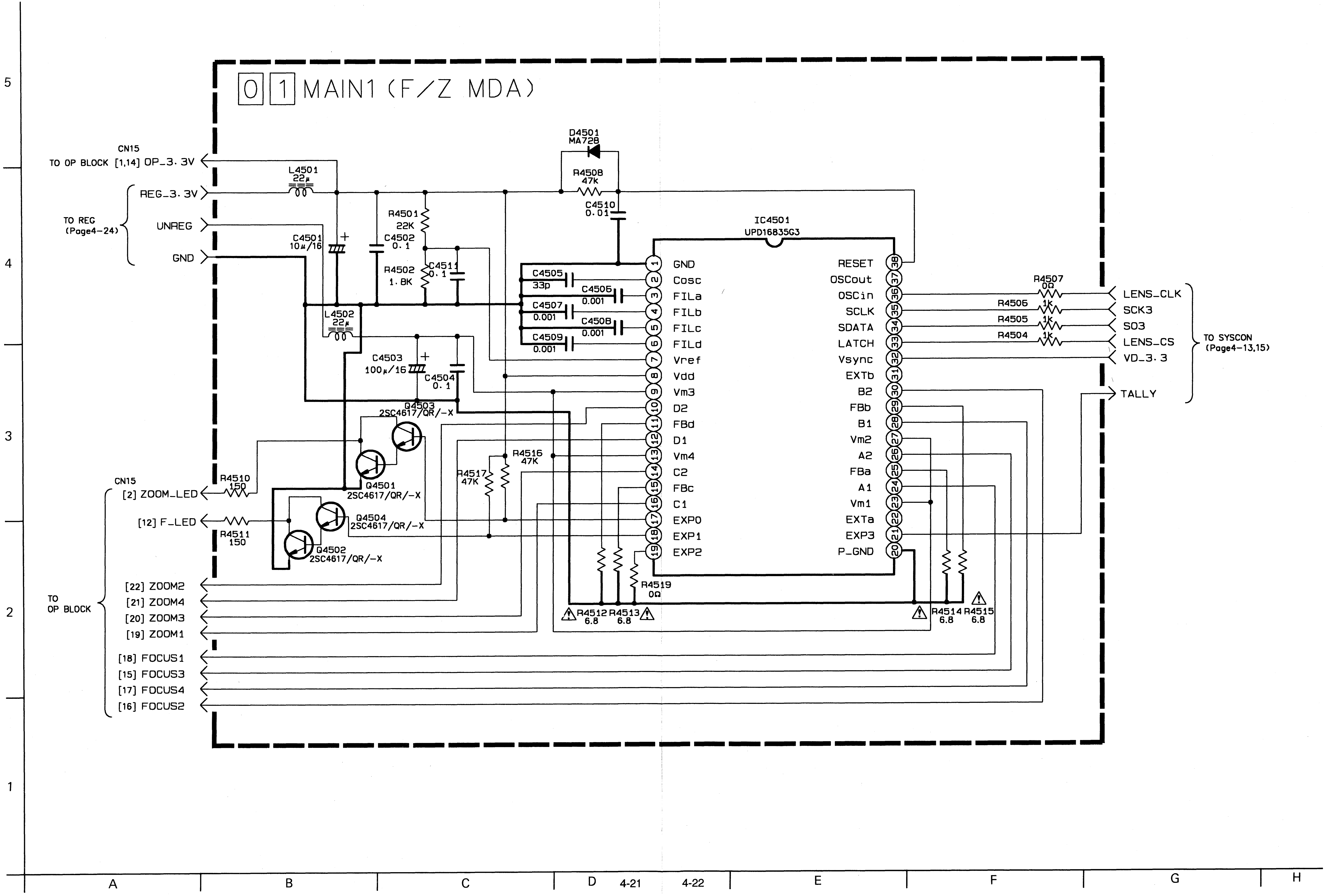
9	R3037	R3038	R3039	R3040
N	OPEN	OPEN	OPEN	OPEN
D	USED	USED	USED	USED
N	OPEN	OPEN	OPEN	OPEN

4.6 PROCESS & Y/C SCHEMATIC DIAGRAM

4.7 AUTO SCHEMATIC DIAGRAM

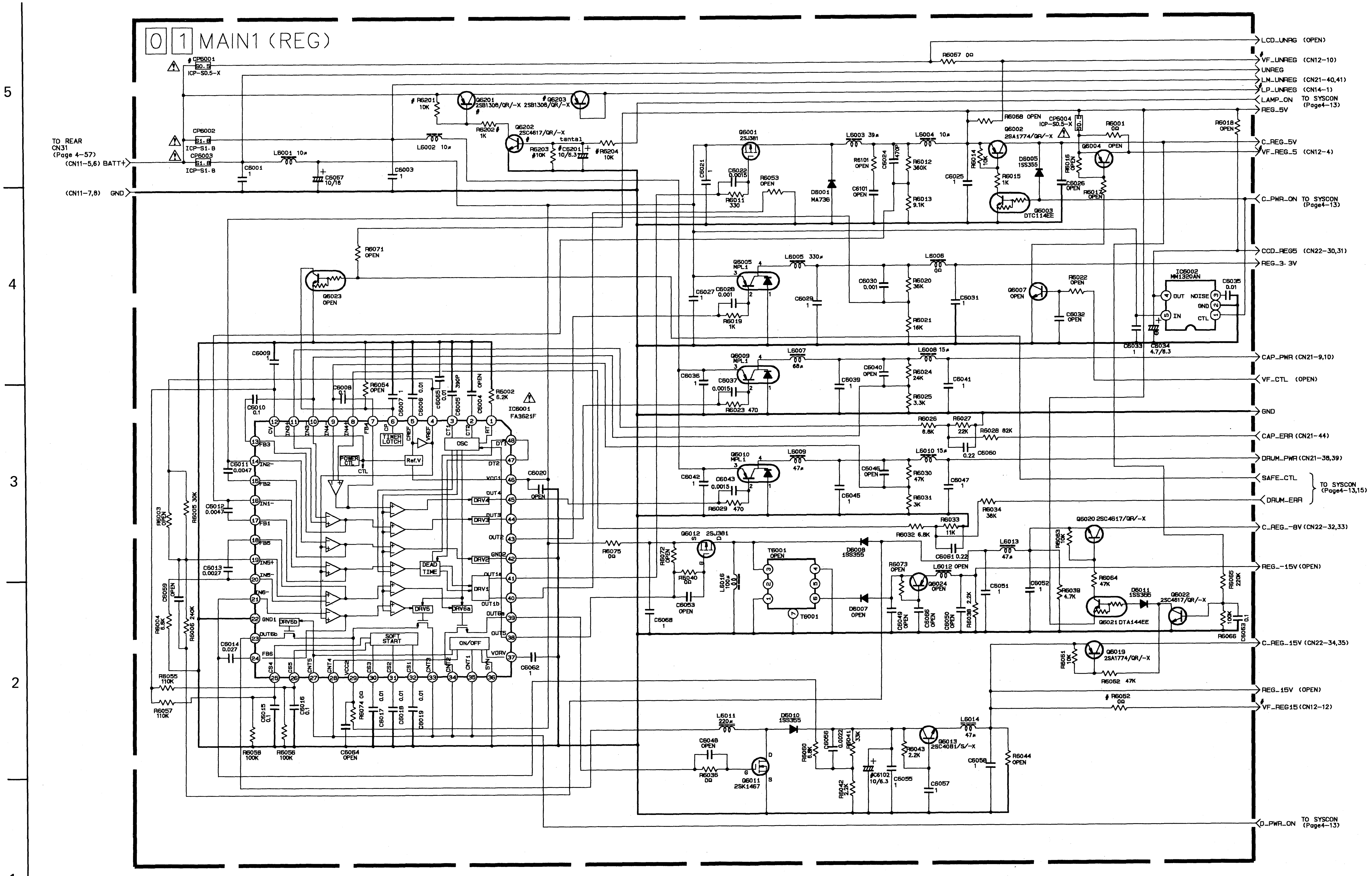

TO SYSCON (Page4-13)
AFS_CLK
AFS_DATA
TO REG (Page4-24)
REG_3.3V
TO SYSCON (Page4-13,15)
KOKI_CHG
KOUKIDO
HOLE_AD
PINT_VLT
H_T_C
HL_LVL
FCS_G/A
AREA2
AREA1
IRIS_O/C
AW_R-Y
AW1
AW_2R-G
AW_2B-G
Y_AVRG
C_REG_5V
TO REG (Page4-24)
TO OP BLOCK CN15
HE_IN- [6]
DRIVE+ [10]
DUMP+ [11]
GND [8]
[DRIVE-]
DUMP- [9]
HE_OUT+ [7]
HE_OUT- [5]
HE_IN+ [4]
IRIS_ADJ
IRIS_DET
HE_ADJ2
HE_ADJ1
V_EDGE
TO PROCESS & Y/C (Page4-16)
VD_H [23]
ENCP [20]
CN22
TO CCD CN51 (Page4-31)
GAMMA_Y
REF_B-Y
REF_R-Y
2R-G
2B-G
V_REF
TO PROCESS & Y/C (Page4-16)
GND
IC4203
JCY0007-1-XE
IC4201
BA10324AFV-XE
IC4202
BA10324AFV-XE
UPC358GR
IC4205
Q4201 XP1216
Q4202 DTC144WU
Q4203 DTA114EU
Q4204 DTC144WU
Q4205 XP5601
Q4206 XP5601
Q4207 XP5601
D4201 MA8047/L/-X
D4203 1SS355
D4204 RD2.7S/B2/-X
D4205 1SS355
D4206 DAP
D4207 MA728
D4202 1SS355
L4201 22μ
L4202 22μ
L4207 22μ
01 MAIN1 (AUTO)
5
4
3
2
1
A
B
C
D
E
F
G
H

4.8 F/Z MDA SCHEMATIC DIAGRAM



0 1 MAIN1 (F/Z MDA)
CN15
TO OP BLOCK [1,14] OP_3.3V
REG_3.3V
TO REG (Page4-24)
UNREG
GND
L4501 22μ
D4501 MA728
R4508 47k
C4510 0.01
C4501 10μ/16
C4502 0.1
R4501 22K
R4502 1.8K
C4511 0.1
L4502 22μ
C4503 100μ/16
C4504 0.1
C4505 33p
C4506 0.001
C4507 0.001
C4508 0.001
C4509 0.001
IC4501 UPD16835G3
GND
Cosc
FILa
FILb
FILc
FILd
Vref
Vdd
Vm3
D2
FBd
D1
Vm4
C2
FBc
C1
EXP0
EXP1
EXP2
RESET
OSCout
OSCin
SCLK
SDATA
LATCH
Vsync
EXTb
B2
FBb
B1
Vm2
A2
FBa
A1
Vm1
EXTa
EXP3
P_GND
R4507 0Ω
R4506 1K
R4505 1K
R4504 1K
LENS_CLK
SCK3
SO3
LENS_CS
VD_3.3
TALLY
TO SYSCON (Page4-13,15)
Q4503 2SC4617/QR/-X
Q4501 2SC4617/QR/-X
Q4504 2SC4617/QR/-X
Q4502 2SC4617/QR/-X
R4516 47K
R4517 47K
R4510 150
R4511 150
R4519 0Ω
R4512 6.8
R4513 6.8
R4514 6.8
R4515 6.8
CN15
[2] ZOOM_LED
[12] F_LED
TO OP BLOCK
[22] ZOOM2
[21] ZOOM4
[20] ZOOM3
[19] ZOOM1
[18] FOCUS1
[15] FOCUS3
[17] FOCUS4
[16] FOCUS2
5
4
3
2
1
A
B
C
D
E
F
G
H

4.9 REGULATOR SCHEMATIC DIAGRAM


0 1 MAIN1 (REG)
TO REAR CN31 (Page 4-57)
(CN11-5,6) BATT+
(CN11-7,8) GND
CP6001 ICP-S0.5-X
CP6002 ICP-S1.6
CP6003 ICP-S1.6
IC6001 FA3621F
IC6002 MM1320AN
LCD_UNREG (OPEN)
VF_UNREG (CN12-10)
UNREG
LM_UNREG (CN21-40,41)
LP_UNREG (CN14-1)
LAMP_ON TO SYSCON (Page4-13)
REG_5V
C_REG_5V
VF_REG_5 (CN12-4)
C_PWR_ON TO SYSCON (Page4-13)
CCD_REG5 (CN22-30,31)
REG_3.3V
CAP_PWR (CN21-9,10)
VF_CTL (OPEN)
GND
CAP_ERR (CN21-44)
DRUM_PWR (CN21-38,39)
SAFE_CTL
DRUM_ERR
TO SYSCON (Page4-13,15)
C_REG_-8V (CN22-32,33)
REG_-15V (OPEN)
C_REG_15V (CN22-34,35)
REG_15V (OPEN)
VF_REG15 (CN12-12)
D_PWR_ON TO SYSCON (Page4-13)
5
4
3
2

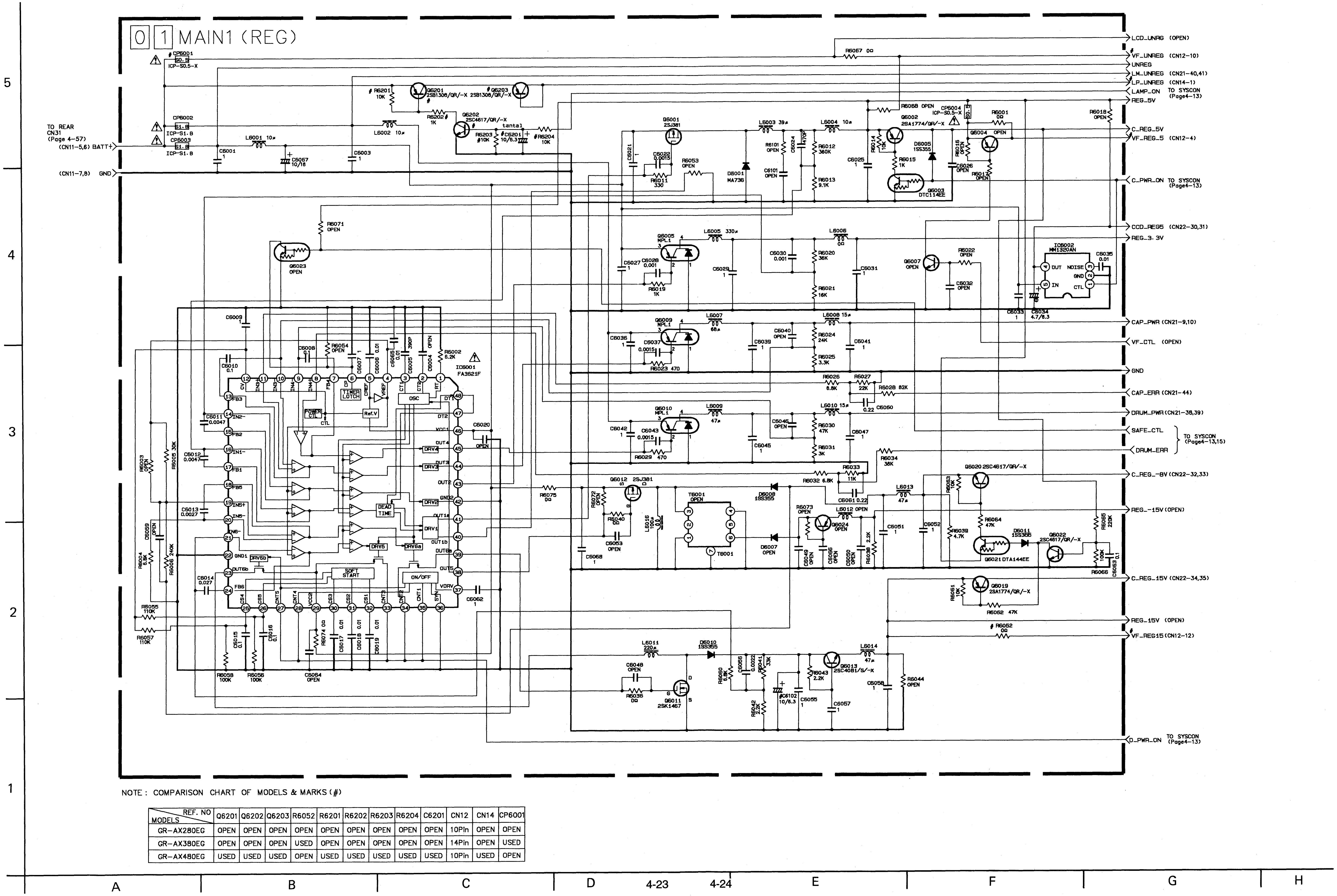
NOTE : COMPARISON CHART OF MODELS & MARKS (#)

MODELS \ REF. NO	Q6201	Q6202	Q6203	R6052	R6201	R6202	R6203	R6204	C6201	CN12	CN14	CP6001
GR-AX280EG	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	10Pin	OPEN	OPEN
GR-AX380EG	OPEN	OPEN	OPEN	USED	OPEN	OPEN	OPEN	OPEN	OPEN	14Pin	OPEN	USED
GR-AX480EG	USED	USED	USED	OPEN	USED	USED	USED	USED	USED	10Pin	USED	OPEN

1

A B C D E F G H

4.9 REGULATOR SCHEMATIC DIAGRAM

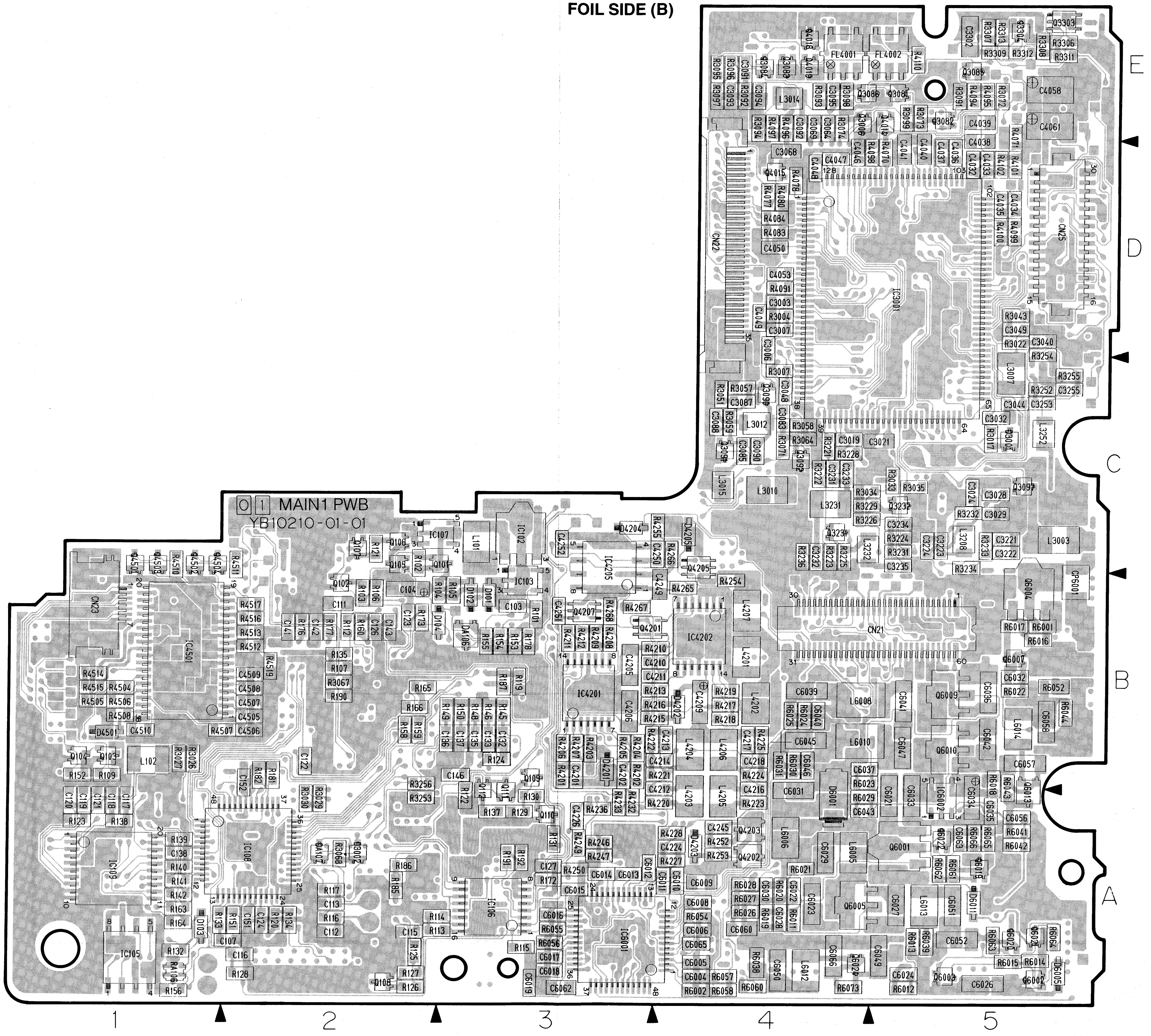

0 1 MAIN1 (REG)
TO REAR CN31 (Page 4-57)
(CN11-5,6) BATT+
(CN11-7,8) GND
CP6001 S0.5 ICP-S0.5-X
CP6002 S1.6 ICP-S1.6
CP6003 S1.6 ICP-S1.6
L6001 10μ
C6001 1
C6067 10/16
C6003 1
L6002 10μ
Q6201 2SB1308/QR/-X
Q6203 2SB1308/QR/-X
Q6202 2SC4617/QR/-X
R6201 10K
R6202 1K
R6203 10K
C6201 10/6.3 tantal
R6204 10K
Q6001 2SJ381
Q6002 2SA1774/QR/-X
Q6003 DTC114EE
Q6004 OPEN
D6001 MA736
D6005 1SS355
L6003 39μ
L6004 10μ
R6057 0Ω
R6058 OPEN
CP6004 ICP-S0.5-X
R6001 0Ω
R6018 OPEN
Q6005 NPL1
Q6009 NPL1
Q6010 NPL1
Q6007 OPEN
Q6023 OPEN
R6071 OPEN
IC6002 MM1320AN
OUT NOISE GND IN CTL
L6005 330μ
L6006 0Ω
L6007 68μ
L6008 15μ
L6009 47μ
L6010 15μ
IC6001 FA3521F
CV IN3 IN4 IN4+ FB4 CP VREF CT1 CT2 RT
FB3 IN2- FB2 IN1- FB1 FB5 IN5+ IN5- IN6- GND1 OUT6b FB6
DT1 DT2 VCC1 OUT4 OUT3 OUT2 GND2 OUT1a OUT1b OUT6a OUT5 VDRV
CS4 CS5 CNT5 CNT4 VCC2 CS3 CS2 CS1 CNT3 CNT2 CNT1 SYN
TIMER LOTCH
POWER CTL
Ref.V
OSC
DEAD TIME
SOFT START
ON/OFF
DRV1 DRV2 DRV3 DRV4 DRV5 DRV6a DRV6b
Q6012 2SJ381
T6001 OPEN
T6001
L6016 100μ
D6008 1SS355
D6007 OPEN
Q6024 OPEN
L6012 OPEN
L6013 47μ
Q6020 2SC4617/QR/-X
Q6021 DTA144EE
Q6022 2SC4617/QR/-X
D6011 1SS355
Q6019 2SA1774/QR/-X
R6052 0Ω
L6011 220μ
D6010 1SS355
Q6011 2SK1467
L6014 47μ
Q6013 2SC4081/S/-X
C6102 10/6.3
LCD_UNREG (OPEN)
VF_UNREG (CN12-10)
UNREG
LM_UNREG (CN21-40,41)
LP_UNREG (CN14-1)
LAMP_ON
REG_5V
TO SYSCON (Page4-13)
C_REG_5V
VF_REG_5 (CN12-4)
C_PWR_ON
TO SYSCON (Page4-13)
CCD_REG5 (CN22-30,31)
REG_3.3V
CAP_PWR (CN21-9,10)
VF_CTL (OPEN)
GND
CAP_ERR (CN21-44)
DRUM_PWR (CN21-38,39)
SAFE_CTL
DRUM_ERR
TO SYSCON (Page4-13,15)
C_REG_-8V (CN22-32,33)
REG_-15V (OPEN)
C_REG_15V (CN22-34,35)
REG_15V (OPEN)
VF_REG15 (CN12-12)
D_PWR_ON
TO SYSCON (Page4-13)
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : COMPARISON CHART OF MODELS & MARKS (#)

MODELS \ REF. NO	Q6201	Q6202	Q6203	R6052	R6201	R6202	R6203	R6204	C6201	CN12	CN14	CP6001
GR-AX280EG	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	10Pin	OPEN	OPEN
GR-AX380EG	OPEN	OPEN	OPEN	USED	OPEN	OPEN	OPEN	OPEN	OPEN	14Pin	OPEN	USED
GR-AX480EG	USED	USED	USED	OPEN	USED	USED	USED	USED	USED	10Pin	USED	OPEN

4.10 MAIN1 AND SUB CIRCUIT BOARDS

FOIL SIDE (B)



01 MAIN1 PWB
YB10210-01-01
IC3001
IC4201
IC4202
IC4205
IC6001
IC6002
IC108
IC109
IC105
IC106
IC107
IC102
IC103
IC4501
CN21
CN22
CN23
CN25
E
D
C
B
A
1
2
3
4
5

COMPONENT PARTS LOCATION GUIDE (MAIN1)

REF.No.	LOCATION		
CAPACITOR			
C101	A	C	3C
C102	A	C	3B
C103	B	C	3B
C104	B	C	2B
C105	A	C	3A
C106	A	C	3A
C107	B	C	2A
C108	A	C	1A
C109	A	C	2C
C110	A	C	2C
C111	B	C	2B
C112	B	C	2A
C113	B	C	2A
C114	A	C	2A
C115	B	C	2A
C116	B	C	2A
C117	B	C	1A
C118	B	C	1A
C119	B	C	1A
C120	B	C	1A
C121	B	C	1A
C122	B	C	2B
C123	B	C	2B
C124	B	C	2A
C125	A	C	1A
C126	B	C	2B
C127	B	C	3A
C128	A	C	1A
C129	A	C	2C
C130	A	C	2C
C131	A	C	2B
C132	B	C	3B
C133	B	C	3B
C134	A	C	3B
C135	B	C	3B
C136	B	C	3B
C137	B	C	3B
C138	B	C	1A
C139	A	C	1A
C140	A	C	2A
C141	B	C	2B
C142	B	C	2B
C143	B	C	2B
C144	A	C	3B
C145	A	C	3B
C146	B	C	3B
C147	A	C	3A
C148	A	C	2A
C149	A	C	2A
C150	A	C	1A
C151	B	C	2A
C152	B	C	2B
C153	A	C	1A
C154	A	C	3B
C3002	A	C	4C
C3003	B	C	4D
C3004	A	C	5C
C3005	A	C	4C
C3006	B	C	4D
C3007	B	C	4D
C3008	A	C	5D
C3009	A	C	4D
C3010	A	C	4C
C3011	A	C	4C
C3012	A	C	4C
C3013	A	C	4D
C3014	A	C	4D
C3015	A	C	4D
C3016	A	C	4C
C3018	A	C	4C
C3019	B	C	4C
C3020	A	C	5C
C3021	B	C	5C
C3022	A	C	5E
C3023	A	C	5C
C3024	B	C	5C
C3025	A	C	5C
C3026	A	C	5C
C3027	A	C	5C
C3028	B	C	5C
C3029	B	C	5C
C3030	A	C	5C
C3031	A	C	5C
C3032	B	C	5C
C3033	A	C	5C
C3034	A	C	5D
C3035	A	C	5D
C3036	A	C	5D
C3037	A	C	5D
C3038	A	C	5D
C3039	A	C	4C
C3040	B	C	5D
C3041	A	C	5D
C3042	A	C	5D
C3043	A	C	5D
C3044	B	C	5C
C3045	A	C	4B
C3046	A	C	5C
C3047	A	C	4D
C3048	B	C	4C
C3049	B	C	5D
C3052	A	C	4D
C3053	A	C	4C
C3054	A	C	5C
C3061	A	C	4E
C3062	A	C	4E
C3063	A	C	4E
C3064	B	C	4E
C3065	A	C	4E
C3066	A	C	4E
C3067	A	C	5D
C3068	B	C	4D
C3069	B	C	4E
C3070	A	C	4D
C3071	A	C	4D
C3072	A	C	4D
C3073	A	C	4D
C3078	A	C	4E
C3079	A	C	4D
C3083	B	C	4C
C3084	A	C	4C
C3085	B	C	4C
C3086	A	C	4C
C3087	B	C	4C
C3088	B	C	4C
C3089	A	C	4C
C3090	B	C	4C
C3091	B	C	4E
C3092	B	C	4E
C3093	B	C	4E
C3094	B	C	4E
C3095	B	C	4E
C3221	B	C	5C
C3222	B	C	5C
C3223	B	C	5C
C3224	B	C	5C
C3231	B	C	4C
C3232	B	C	4C
C3233	B	C	4C
C3234	B	C	5C
C3235	B	C	5C
C3251	A	C	5C
C3253	B	C	5C
C3254	A	C	5C
C3255	B	C	5C
C3302	B	C	5E
C4031	A	C	5D
C4032	B	C	5D
C4033	B	C	5D
C4034	B	C	5D
C4035	B	C	5D
C4036	B	C	5D
C4037	B	C	5D
C4038	B	C	5D
C4039	B	C	5E
C4040	B	C	5D
C4041	B	C	5D
C4042	A	C	5D
C4043	A	C	5D
C4044	A	C	5D
C4045	A	C	4D
C4046	B	C	4D
C4047	B	C	4D
C4048	B	C	4D
C4049	B	C	4D
C4050	B	C	4D
C4051	A	C	4D
C4052	A	C	4D
C4053	B	C	4D
C4054	A	C	5D
C4055	A	C	4D
C4058	B	C	5E
C4059	A	C	4D
C4060	A	C	4D
C4061	B	C	5E
C4201	B	C	3B
C4202	B	C	3B
C4203	A	C	4B
C4204	A	C	3B
C4205	B	C	3B
C4206	B	C	3B
C4208	A	C	3B
C4209	B	C	4B
C4210	B	C	3B
C4211	B	C	3B
C4212	B	C	4B
C4213	B	C	4B
C4214	B	C	4B
C4215	A	C	4B
C4216	B	C	4B
C4217	B	C	4B
C4218	B	C	4B
C4219	A	C	4B
C4220	A	C	4B
C4221	A	C	4B
C4222	A	C	4A
C4223	A	C	4A
C4224	B	C	4A
C4225	A	C	4A
C4226	B	C	3A
C4228	A	C	3A
C4229	A	C	3A
C4230	A	C	3A
C4231	A	C	3A
C4232	A	C	3A
C4233	A	C	3B
C4234	A	C	3B
C4235	A	C	3B
C4236	A	C	3B
C4237	A	C	3B
C4238	A	C	3B
C4240	A	C	4B
C4242	A	C	4B
C4243	A	C	4B
C4244	A	C	4B
C4245	B	C	4A
C4246	A	C	3B
C4247	A	C	3C
C4248	A	C	3C
C4249	B	C	3B
C4250	B	C	3C
C4251	B	C	3B
C4252	B	C	3C
C4254	A	C	3A
C4501	A	C	2B
C4502	A	C	2B
C4503	A	C	1B
C4504	A	C	2B
C4505	B	C	2B
C4506	B	C	2B
C4507	B	C	2B
C4508	B	C	2B
C4509	B	C	2B
C4510	B	C	1B
C4511	A	C	2B
C6001	A	C	5B
C6003	A	C	5B
C6004	B	C	4A
C6005	B	C	4A
C6006	B	C	4A
C6007	A	C	3A
C6008	B	C	4A
C6009	B	C	4A
C6010	B	C	4A
C6011	B	C	4A
C6012	B	C	3A
C6013	B	C	3A
C6014	B	C	3A
C6015	B	C	3A
C6016	B	C	3A
C6017	B	C	3A
C6018	B	C	3A
C6019	B	C	3A
C6020	A	C	3A
C6021	B	C	5A
C6022	B	C	4A
C6023	B	C	4A
C6024	B	C	5A
C6025	A	C	5A
C6026	B	C	5A
C6027	B	C	5A
C6028	B	C	4A
C6029	B	C	4A
C6030	B	C	4A
C6031	B	C	4A
C6032	B	C	5B
C6033	B	C	5A
C6034	B	C	5A
C6035	B	C	5A
C6036	B	C	5B
C6037	B	C	4B
C6039	B	C	4B
C6040	B	C	4B
C6041	B	C	5B
C6042	B	C	5B
C6043	B	C	4A
C6045	B	C	4B
C6046	B	C	4B
C6047	B	C	5B
C6048	A	C	4A
C6049	B	C	5A
C6050	B	C	4A
C6051	B	C	5A
C6052	B	C	5A
C6053	A	C	5A
C6055	A	C	4A
C6056	B	C	5A
C6057	B	C	5B
C6058	B	C	5B
C6059	A	C	3A
C6060	B	C	4A
C6061	A	C	4A
C6062	B	C	3A
C6063	B	C	5A
C6064	A	C	3A
C6065	B	C	4A
C6066	B	C	4A
C6067	A	C	5A
C6068	A	C	5A
C6201	A	C	4B
CONNECTOR			
CN11	A	C	5B
CN12	A	C	5E
CN13	A	C	4E
CN14	A	C	2C
CN15	A	C	1C
CN16	A	C	1A
CN18	A	C	4A
CN21	B	C	5B
CN22	B	C	4D
CN23	B	C	1B
CN25	B	C	5D
CIRCUIT PROTECTOR			
CP6001	B	C	5B
CP6002	A	C	5B
CP6003	A	C	5B
CP6004	A	C	5C
DIODE			
D101	B	C	3B
D102	B	C	3B
D103	B	C	1A
D104	B	C	2B
D3001	B	C	5C
D3002	B	C	2A
D4201	B	C	3B
D4202	B	C	4B
D4203	B	C	4A
D4204	B	C	3C
D4205	B	C	4C
D4206	A	C	3B
D4207	A	C	3C
D4501	B	C	1B
D6001	B	C	4A
D6005	B	C	5A
D6007	A	C	5A
D6008	A	C	5A
D6010	A	C	4A
D6011	B	C	5A
DA101	A	C	2A
DA102	A	C	2B
DA103	A	C	1A
DA104	A	C	2C
DA106	B	C	3B
DA107	B	C	2A
IC			
IC101	A	C	2B
IC102	B	C	3C
IC103	B	C	3B
IC104	A	C	1A
IC105	B	C	1A
IC106	B	C	3A
IC107	B	C	2C
IC108	B	C	2A
IC109	B	C	1A
IC110	A	C	1A
IC3001	B	C	5D
IC3003	A	C	4D
IC3081	A	C	5C
IC4001	A	C	4E
IC4201	B	C	3B
IC4202	B	C	4B
IC4203	A	C	3B
IC4205	B	C	3C
IC4501	B	C	1B
IC6001	B	C	3A
IC6002	B	C	5A
COIL			
L101	B	C	3C
L102	B	C	1B
L3001	A	C	5C
L3002	A	C	4C
L3003	B	C	5C
L3004	A	C	5C
L3006	A	C	4C
L3007	B	C	5C
L3009	A	C	5D
L3010	B	C	4C
L3011	A	C	5C
L3012	B	C	4C
L3013	A	C	4C
L3014	B	C	4E
L3015	B	C	4C
L3208	B	C	5C
L3231	B	C	4C
L3232	B	C	4C
L3252	B	C	5C
L4005	A	C	5D
L4006	A	C	5D
L4201	B	C	4B
L4202	B	C	4B
L4203	B	C	4A
L4204	B	C	4B
L4205	B	C	4A
L4206	B	C	4B
L4207	B	C	4B
L4501	A	C	1B
L4502	A	C	2B
L6001	A	C	5B
L6002	A	C	5B
L6003	A	C	4A
L6004	A	C	5A
L6005	B	C	4A
L6006	B	C	4A
L6007	A	C	5B
L6008	B	C	4B
L6009	A	C	5B
L6010	B	C	4B
L6011	A	C	4B
L6012	B	C	4A
L6013	B	C	5A
L6014	B	C	5B
L6016	A	C	5A
TRANSISTOR			
Q101	B	C	2C
Q102	B	C	2B
Q103	B	C	1B
Q104	B	C	1B
Q105	B	C	2C
Q106	B	C	2C
Q107	B	C	2C
Q108	B	C	2A
Q109	B	C	3B
Q110	B	C	3A
Q111	B	C	3A
Q112	B	C	3A
Q3002	A	C	5D
Q3006	B	C	4E
Q3008	A	C	5D
Q3009	A	C	5E
Q3011	A	C	5C
Q3012	A	C	5C
Q3081	B	C	5E
Q3082	B	C	5E
Q3083	B	C	4E
Q3084	B	C	4E
Q3085	B	C	5E
Q3086	B	C	4E
Q3087	A	C	4C
Q3088	A	C	4C
Q3089	A	C	4C
Q3090	B	C	4C
Q3091	B	C	4C
Q3092	B	C	4C
Q3093	A	C	4C
Q3094	A	C	4C
Q3095	A	C	4C
Q3096	A	C	4C
Q3097	B	C	5C
Q3231	B	C	4C
Q3232	B	C	5C
Q3251	A	C	5D
Q3252	A	C	5D
Q3303	B	C	5E
Q3304	B	C	5E
Q4010	A	C	5D

REF.No.	LOCATION		
Q4011	A	C	5D
Q4012	A	C	5D
Q4013	A	C	4D
Q4014	B	C	5E
Q4015	B	C	4D
Q4017	A	C	5D
Q4018	B	C	4E
Q4019	B	C	4E
Q4201	B	C	3B
Q4202	B	C	4A
Q4203	B	C	4A
Q4204	A	C	3A
Q4205	B	C	4C
Q4206	A	C	3C
Q4207	B	C	3B
Q4501	B	C	1C
Q4502	B	C	1C
Q4503	B	C	1C
Q4504	B	C	1C
Q6001	B	C	5A
Q6002	B	C	5A
Q6003	B	C	5A
Q6004	B	C	5B
Q6005	B	C	4A
Q6007	B	C	5B
Q6009	B	C	5B
Q6010	B	C	5B
Q6011	A	C	4B
Q6012	A	C	5A
Q6013	B	C	5A
Q6019	B	C	5A
Q6020	B	C	5A
Q6021	B	C	5A
Q6022	B	C	5A
Q6023	A	C	3A
Q6024	B	C	4A
Q6201	A	C	4B
Q6202	A	C	5B
Q6203	A	C	4B

RESISTOR

REF.No.	LOCATION		
R101	B	C	3B
R102	B	C	2C
R103	B	C	2B
R104	B	C	2B
R105	B	C	3B
R106	B	C	2B
R107	B	C	2B
R108	A	C	1A
R109	B	C	1B
R110	A	C	2B
R111	A	C	2B
R112	B	C	2B
R113	B	C	2A
R114	B	C	2A
R115	B	C	3A
R116	B	C	2A
R117	B	C	2A
R118	A	C	3B
R119	B	C	3B
R120	B	C	2A
R121	B	C	2C
R122	B	C	3A
R123	B	C	1A
R124	B	C	3B
R125	B	C	2A
R126	B	C	2A
R127	B	C	2A
R128	B	C	2A
R129	B	C	3A
R130	B	C	3A
R131	B	C	3A
R132	B	C	1A
R133	B	C	1A
R134	B	C	2A
R135	B	C	2B
R136	A	C	1A
R137	B	C	3A
R138	B	C	1A
R139	B	C	1A
R140	B	C	1A
R141	B	C	1A
R142	B	C	1A
R143	A	C	2A
R144	A	C	3B
R145	B	C	3B
R146	B	C	3B
R147	A	C	3B
R148	B	C	3B
R149	B	C	3B
R150	B	C	3B
R151	B	C	2A
R152	B	C	1B
R153	B	C	3B
R154	B	C	3B
R155	B	C	3B
R156	B	C	1A
R157	A	C	1A
R158	B	C	2B
R159	B	C	2B
R160	B	C	2B
R161	A	C	2A
R162	A	C	2A
R163	B	C	1A
R164	B	C	1A
R165	B	C	2B
R166	B	C	2B
R167	A	C	1A
R168	A	C	1A
R169	A	C	1A
R170	A	C	1A
R171	A	C	1A
R172	B	C	3A
R173	B	C	2B
R174	A	C	1A
R175	A	C	1A
R176	B	C	2B
R177	B	C	2B
R178	B	C	3B
R179	A	C	2A
R180	A	C	3A
R181	B	C	2B
R182	B	C	2B
R183	A	C	2B
R184	A	C	2C
R185	B	C	2A
R186	B	C	2A
R187	B	C	3B
R188	A	C	2A
R189	A	C	2B
R190	B	C	2B
R191	B	C	3A
R192	B	C	3A
R193	A	C	1A
R194	A	C	1B
R195	A	C	3C
R196	A	C	3C
R3003	A	C	5D
R3004	B	C	4D
R3005	A	C	4C
R3006	A	C	4D
R3007	B	C	4C
R3008	A	C	4D
R3009	A	C	4D
R3010	A	C	4D
R3011	A	C	4C
R3012	A	C	4C
R3013	A	C	4C
R3014	A	C	5C
R3015	A	C	4C
R3016	A	C	5C
R3017	B	C	5C
R3018	A	C	5D
R3019	A	C	5D
R3020	A	C	5D
R3021	A	C	4C
R3022	B	C	5D
R3023	A	C	4C
R3024	A	C	4D
R3025	A	C	4C
R3026	B	C	1B
R3027	B	C	1B
R3028	A	C	4C
R3029	B	C	2A
R3030	B	C	2A
R3031	A	C	5C
R3033	B	C	5C
R3034	B	C	4C
R3035	B	C	5C
R3036	A	C	5D
R3037	A	C	5E
R3038	A	C	5E
R3039	A	C	5D
R3040	A	C	5E
R3042	A	C	5D
R3043	B	C	5D
R3044	A	C	5D
R3045	A	C	5D
R3046	A	C	5D
R3050	A	C	4C
R3051	B	C	4C
R3052	A	C	4C
R3053	A	C	4C
R3054	A	C	4C
R3055	A	C	4C
R3057	B	C	4C
R3058	B	C	4C
R3059	B	C	4C
R3060	A	C	4C
R3061	A	C	4D
R3062	A	C	4C
R3063	A	C	4C
R3064	B	C	4C
R3065	A	C	5D
R3066	A	C	5D
R3067	B	C	2B
R3068	B	C	2A
R3071	B	C	4C
R3072	B	C	5E
R3073	B	C	5E
R3074	B	C	4E
R3090	A	C	5E
R3091	B	C	5E
R3092	B	C	4E
R3093	B	C	4E
R3094	B	C	4E
R3095	B	C	4E
R3096	B	C	4E
R3097	B	C	4E
R3098	B	C	4E
R3099	B	C	5E
R3101	A	C	3A
R3220	A	C	4C
R3221	B	C	4C
R3222	B	C	4C
R3223	B	C	4C
R3224	B	C	5C
R3225	B	C	4C
R3226	B	C	4C
R3228	B	C	4C
R3229	B	C	4C
R3230	A	C	5C
R3231	B	C	5C
R3232	B	C	5C
R3233	B	C	5C
R3234	B	C	5C
R3235	A	C	5D
R3236	B	C	4C
R3237	A	C	4C
R3251	A	C	5C
R3252	B	C	5C
R3253	B	C	2A
R3254	B	C	5D
R3255	B	C	5C
R3256	B	C	2B
R3306	B	C	5E
R3307	B	C	5E
R3308	B	C	5E
R3309	B	C	5E
R3311	B	C	5E
R3312	B	C	5E
R3313	B	C	5E
R4061	A	C	4D
R4062	A	C	4D
R4063	A	C	4D
R4064	A	C	4D
R4065	A	C	5D
R4066	A	C	5D
R4068	A	C	5D
R4069	A	C	5D
R4070	B	C	5D
R4071	B	C	5E
R4073	A	C	5D
R4074	A	C	5D
R4075	A	C	5D
R4077	B	C	4D
R4078	B	C	4D
R4079	A	C	4D
R4080	B	C	4D
R4083	B	C	4D
R4084	B	C	4D
R4085	A	C	4D
R4086	A	C	4D
R4087	A	C	4D
R4088	A	C	4D
R4090	A	C	4D
R4091	B	C	4D
R4092	A	C	4D
R4094	B	C	5E
R4095	B	C	5E
R4096	B	C	4E
R4097	B	C	4E
R4098	B	C	4D
R4099	B	C	5D
R4100	B	C	5D
R4101	B	C	5D
R4102	B	C	5D
R4103	A	C	5D
R4107	A	C	4E
R4108	A	C	4E
R4109	A	C	4E
R4110	B	C	5E
R4111	A	C	4E
R4201	B	C	3B
R4202	B	C	3B
R4203	B	C	3B
R4204	B	C	3B
R4205	B	C	3B
R4206	B	C	3B
R4207	B	C	3B
R4208	B	C	3B
R4209	B	C	3B
R4210	B	C	3B
R4211	B	C	3B
R4212	B	C	3B
R4213	B	C	3B
R4215	B	C	3B
R4216	B	C	3B
R4217	B	C	4B
R4218	B	C	4B
R4219	B	C	4B
R4220	B	C	4A
R4221	B	C	4B
R4222	B	C	3B
R4223	B	C	4A
R4224	B	C	4B
R4225	B	C	4B
R4226	A	C	4B
R4227	B	C	4A
R4228	B	C	4A
R4229	A	C	4A
R4230	A	C	3B
R4231	A	C	3A
R4232	B	C	3A
R4233	B	C	3A
R4234	A	C	3A
R4235	A	C	3A
R4236	B	C	3A
R4237	A	C	3A
R4238	A	C	3A
R4239	A	C	3A
R4240	A	C	3A
R4241	A	C	3A
R4243	A	C	3B
R4244	A	C	3B
R4245	A	C	3B
R4246	B	C	3A
R4247	B	C	3A
R4249	B	C	3A
R4250	B	C	3A
R4252	B	C	4A
R4253	B	C	4A
R4254	B	C	4B
R4255	B	C	3C
R4256	A	C	3B
R4257	A	C	3C
R4258	A	C	3C
R4259	A	C	3C
R4260	A	C	3B
R4261	A	C	3B
R4262	A	C	3B
R4263	A	C	3B
R4264	A	C	3B
R4265	B	C	4B
R4266	B	C	4C
R4267	B	C	3B
R4268	B	C	3B
R4270	A	C	3C
R4501	A	C	2B
R4502	A	C	2B
R4504	B	C	1B
R4505	B	C	1B
R4506	B	C	1B
R4507	B	C	1B
R4508	B	C	1B
R4510	B	C	1C
R4511	B	C	2C
R4512	B	C	2B
R4513	B	C	2B
R4514	B	C	1B
R4515	B	C	1B
R4516	B	C	2B
R4517	B	C	2B
R4519	B	C	2B
R6001	B	C	5B
R6002	B	C	4A
R6003	A	C	3A
R6004	A	C	3A
R6005	A	C	3A
R6006	A	C	3A
R6011	B	C	4A
R6012	B	C	5A
R6013	B	C	5A
R6014	B	C	5A
R6015	B	C	5A
R6016	B	C	5B
R6017	B	C	5B
R6018	B	C	5B
R6019	B	C	4A
R6020	B	C	4A
R6021	B	C	4A
R6022	B	C	5B
R6023	B	C	4B
R6024	B	C	4B
R6025	B	C	4B
R6026	B	C	4A
R6027	B	C	4A
R6028	B	C	4A
R6029	B	C	4A
R6030	B	C	4B
R6031	B	C	4B
R6032	A	C	4A
R6033	A	C	4A
R6034	A	C	4A
R6036	A	C	4A
R6038	B	C	4A
R6039	B	C	5A
R6040	A	C	5A
R6041	B	C	5A
R6042	B	C	5A
R6043	B	C	5B
R6044	B	C	5B
R6052	B	C	5B
R6053	A	C	4A
R6054	B	C	4A
R6055	B	C	3A
R6056	B	C	3A
R6057	B	C	4A
R6058	B	C	4A
R6060	B	C	4A
R6061	B	C	5A
R6062	B	C	5A
R6063	B	C	5A
R6064	B	C	5A
R6065	B	C	5A
R6066	B	C	5A
R6067	A	C	5C
R6068	A	C	5C
R6071	A	C	3A
R6072	A	C	5A
R6073	B	C	4A
R6074	A	C	3A
R6075	A	C	5A
R6201	A	C	5B
R6202	A	C	4B
R6203	A	C	5B
R6204	A	C	4B
RA101	A	C	3A
RA102	A	C	2B
RA103	A	C	3A
RA104	A	C	1A
RA105	A	C	3B
RA106	B	C	1A
RA107	A	C	3B
RA108	A	C	2A
RA3001	A	C	5D
RA3002	A	C	5D

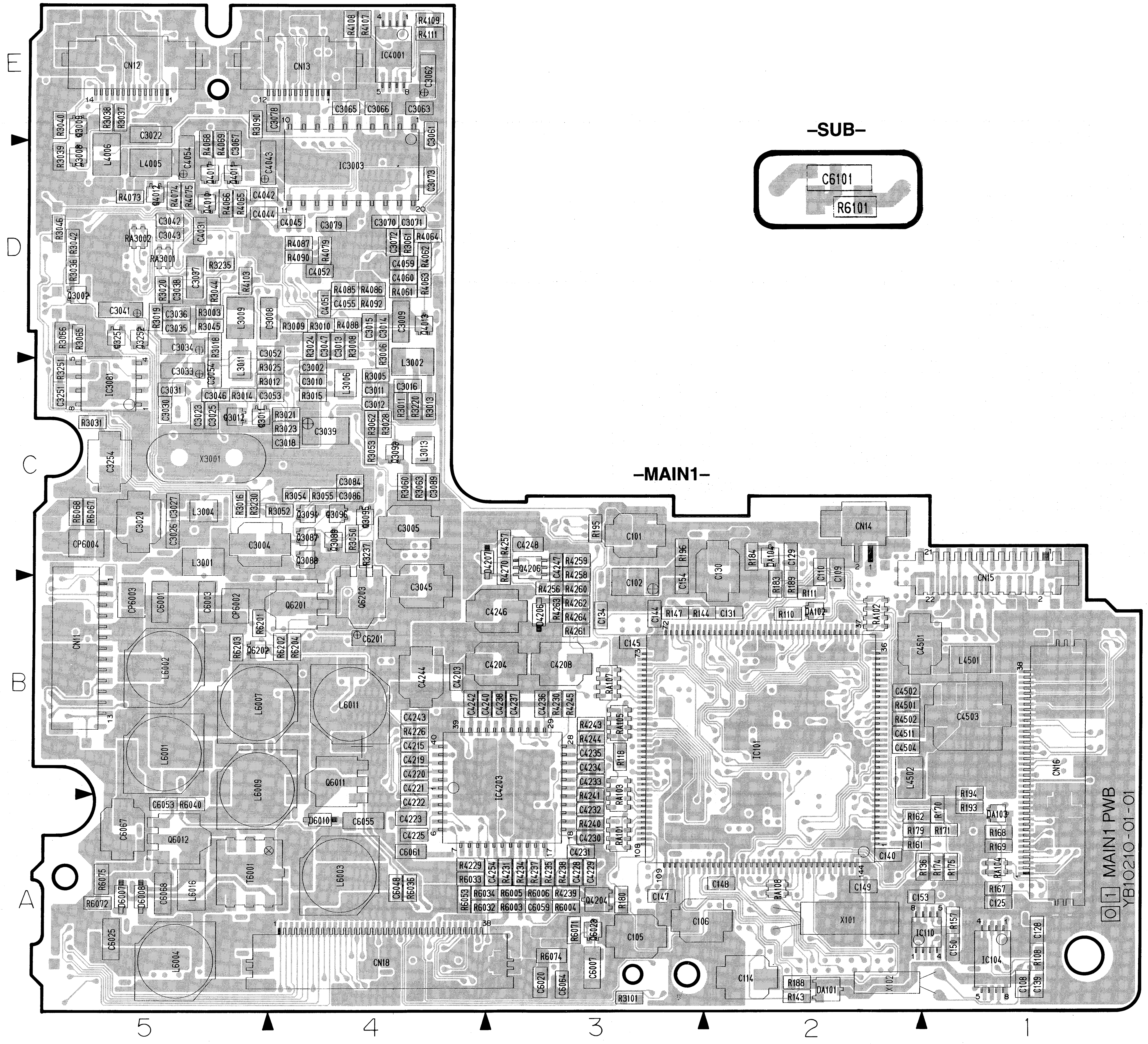
TEST POINT

REF.No.	LOCATION		
TP101	B	C	4D

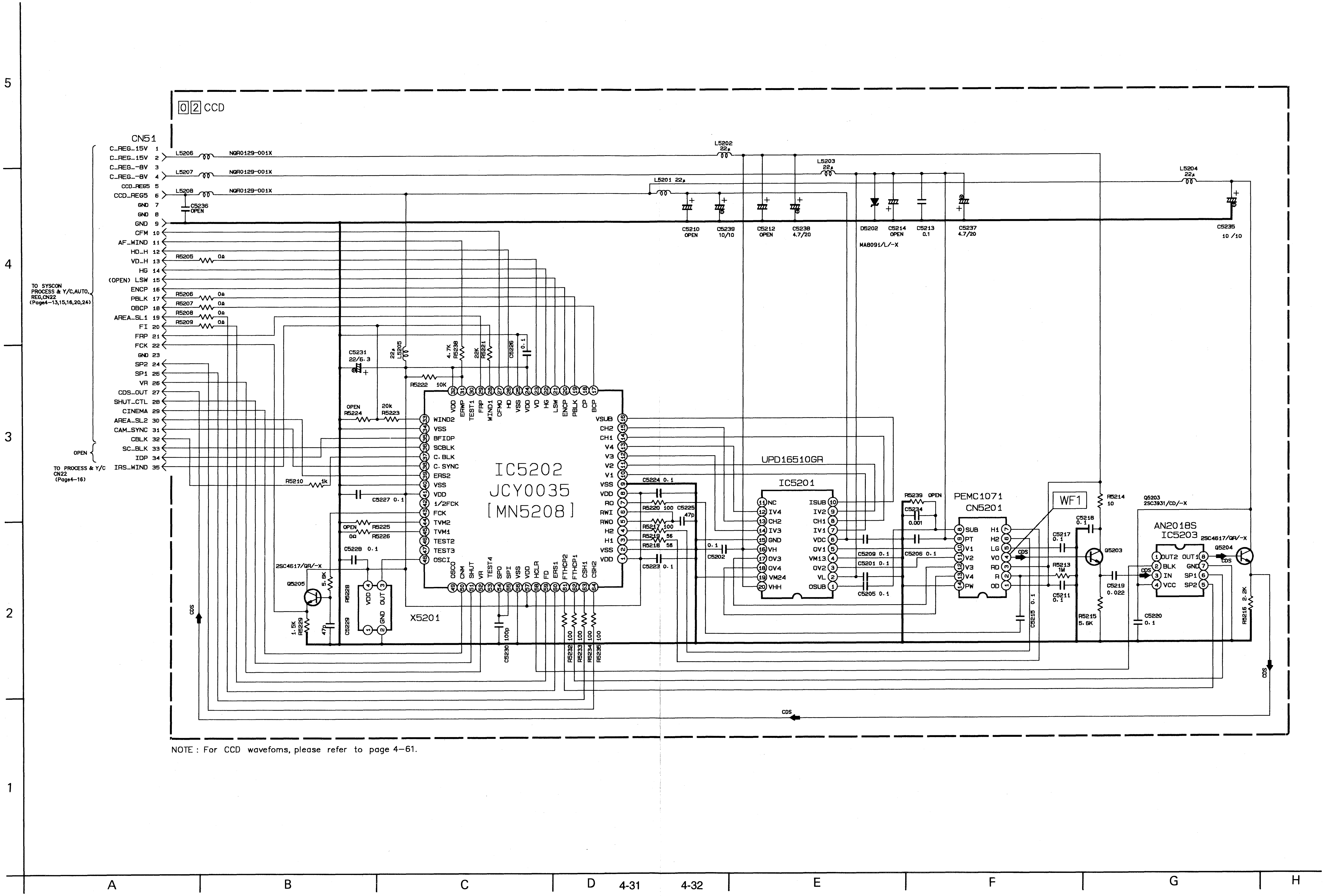
OTHER

REF.No.	LOCATION		
FL4001	B	C	4E
FL4002	B	C	5E
T6001	A	C	5A
X101	A	D	2A
X102	A	D	1A
X3001	A	D	5C

COMPONENT SIDE (A)


-SUB-
C6101
R6101
-MAIN1-
MAIN1 PWB
YB10210-01-01
E
D
C
B
A
5
4
3
2
1
CN11
CN12
CN13
CN14
CN15
CN16
CN18
IC101
IC104
IC110
IC3003
IC3081
IC4001
IC4203
X101
X102
X3001
Q6011
Q6012
Q6201
Q6203
T6001
L6001
L6002
L6003
L6004
L6007
L6009
L6011
L6016
L3001
L3002
L3004
L3006
L3009
L3011
L3013
L4005
L4006
L4501
L4502
C3004
C3005
C3045
C4204
C4208
C4244
C4246
C4501
C4503
C101
C102
C105
C106
C114
C130
CP6002
CP6003
CP6004

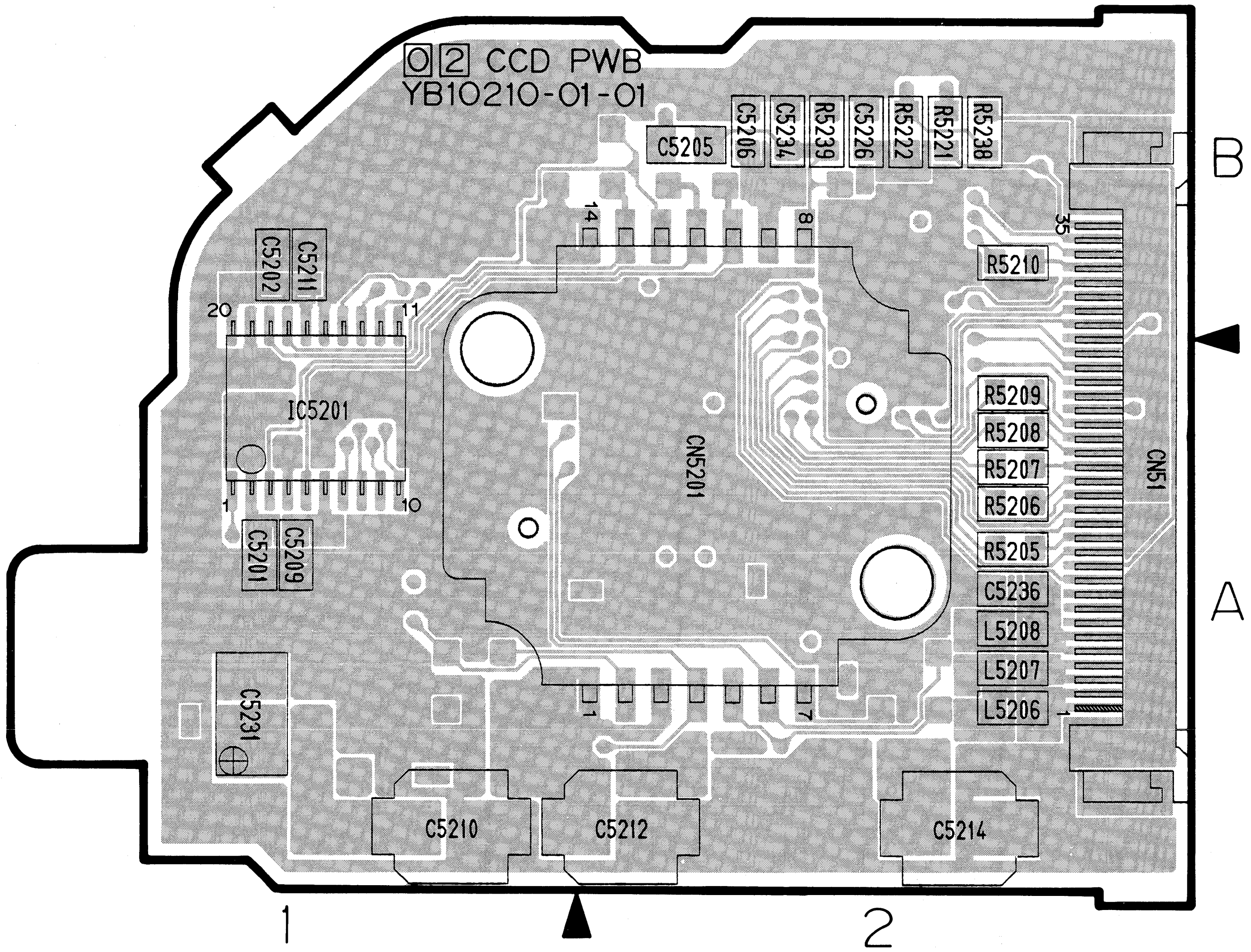
4.11 CCD SCHEMATIC DIAGRAM


02 CCD
CN51
C_REG_15V 1
C_REG_15V 2
C_REG_-8V 3
C_REG_-8V 4
CCD_REG5 5
CCD_REG5 6
GND 7
GND 8
GND 9
CFM 10
AF_WIND 11
HD_H 12
VD_H 13
HG 14
(OPEN) LSW 15
ENCP 16
PBLK 17
OBCP 18
AREA_SL1 19
FI 20
FRP 21
FCK 22
GND 23
SP2 24
SP1 25
VR 26
CDS_OUT 27
SHUT_CTL 28
CINEMA 29
AREA_SL2 30
CAM_SYNC 31
CBLK 32
SC_BLK 33
IDP 34
IRS_WIND 35
TO SYSCON PROCESS & Y/C,AUTO, REG,CN22 (Page4-13,15,16,20,24)
OPEN
TO PROCESS & Y/C CN22 (Page4-16)
L5206 NQR0129-001X
L5207 NQR0129-001X
L5208 NQR0129-001X
C5236 OPEN
L5202 22μ
L5201 22μ
L5203 22μ
L5204 22μ
C5210 OPEN
C5239 10/10
C5212 OPEN
C5238 4.7/20
D5202 MA8091/L/-X
C5214 OPEN
C5213 0.1
C5237 4.7/20
C5235 10 /10
R5205 0Ω
R5206 0Ω
R5207 0Ω
R5208 0Ω
R5209 0Ω
C5231 22/6.3
L5205 22μ
R5238 4.7K
R5221 22K
C5226 0.1
R5222 10K
R5224 OPEN
R5223 20k
R5210 1k
C5227 0.1
R5225 OPEN
R5226 0Ω
C5228 0.1
2SC4617/QR/-X
Q5205
R5229 1.5K
5.6K
47p
R5228
C5229
X5201
C5230 100p
R5232 100
R5233 100
R5234 100
R5235 100
IC5202
JCY0035
[MN5208]
WIND2 VSS BFIDP SCBLK C.BLK C.SYNC ERS2 VSS VDD 1/2FCK FCK TVM2 TVM1 TEST2 TEST3 OSCI
VDD ERWP TEST1 FRP WIND1 CFMO HD VSS VDD VD HG LSW ENCP PBLK CP BCP
VSUB CH2 CH1 V4 V3 V2 V1 VSS VDD RO RWI RWO H2 H1 VSS VDD
OSCO CNM SHUT VR TEST4 SPO SPI VSS VDD HCLR FD ERS1 FTHCP2 FTHCP1 CSH1 CSH2
C5224 0.1
R5220 100
C5225 47p
R5217 100
R5219 56
R5218 56
C5223 0.1
0.1 C5202
UPD16510GR
IC5201
NC IV4 CH2 IV3 GND VH OV3 OV4 VM24 VHH
ISUB IV2 CH1 IV1 VDC OV1 VM13 OV2 VL OSUB
C5209 0.1
C5201 0.1
C5205 0.1
R5239 OPEN
C5234 0.001
C5206 0.1
PEMC1071
CN5201
SUB PT V1 V2 V3 V4 PW
H1 H2 LG VO RD R OD
C5215 0.1
WF1
CDS
R5214 10
C5218 0.1
C5217 0.1
R5213 1M
C5211 0.1
Q5203 2SC3931/CD/-X
R5215 5.6K
C5219 0.022
C5220 0.1
AN2018S
IC5203
OUT2 BLK IN VCC
OUT1 GND SP1 SP2
2SC4617/QR/-X
Q5204
R5216 2.2K
CDS
CDS
1 2 3 4 5
A B C D E F G H

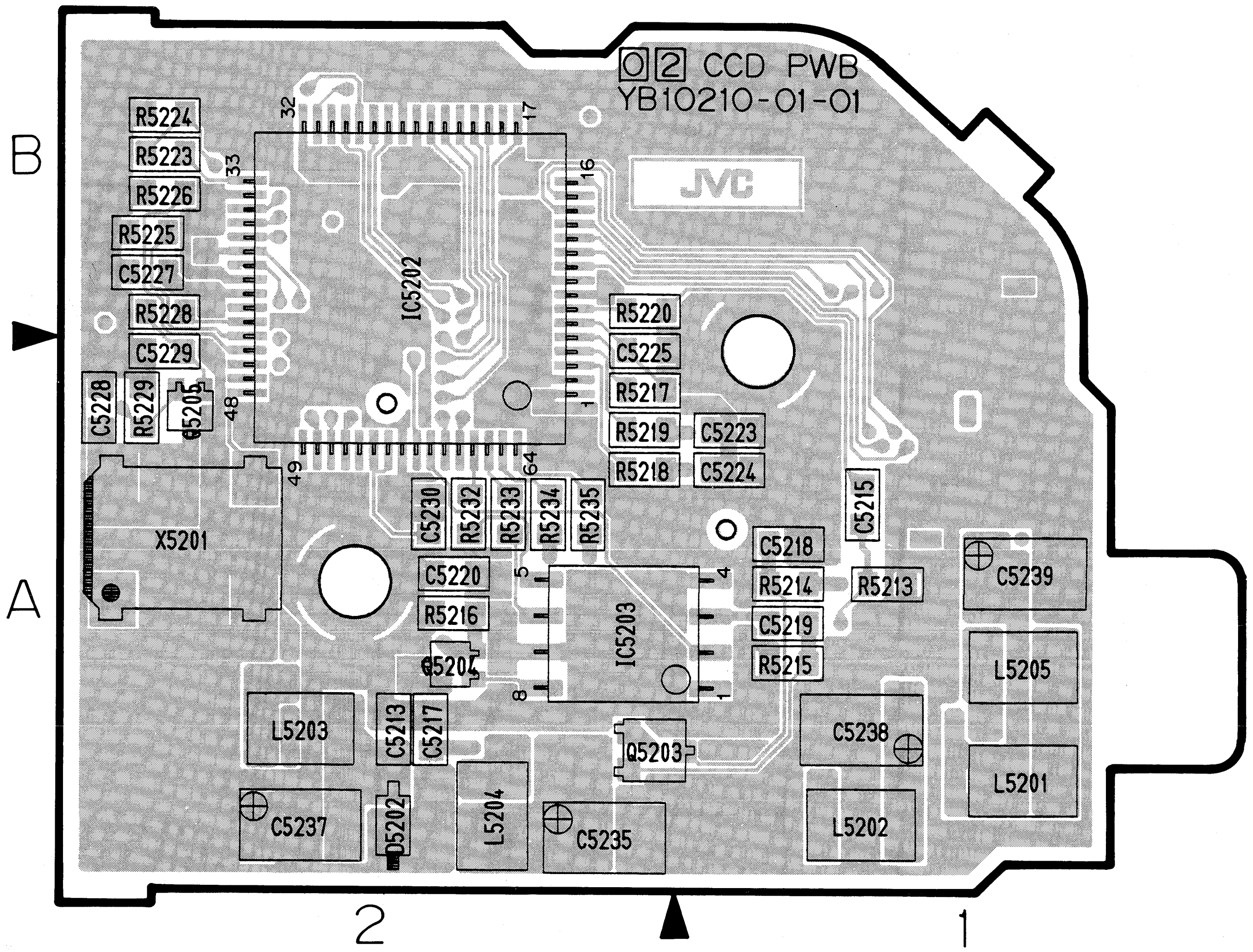
NOTE : For CCD wavefoms, please refer to page 4-61.

4.12 CCD CIRCUIT BOARD

FOIL SIDE (B)


02 CCD PWB
YB10210-01-01
C5205
C5206
C5234
R5239
C5226
R5222
R5221
R5238
14
8
35
R5210
C5202
C5211
20
11
IC5201
1
10
C5201
C5209
CN5201
R5209
R5208
R5207
R5206
R5205
C5236
L5208
L5207
L5206
CN51
C5231
1
7
C5210
C5212
C5214
B
A
1
2

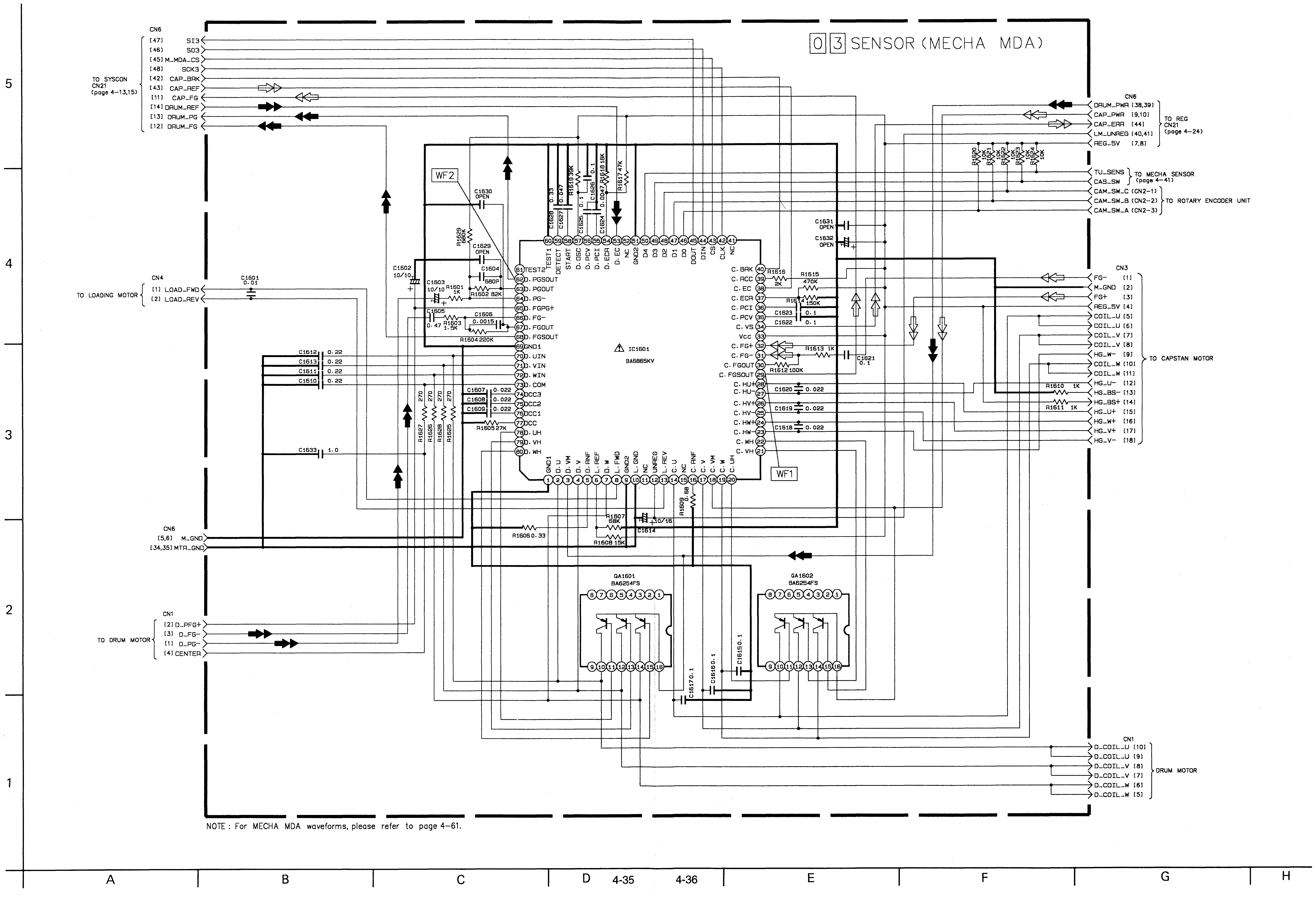
COMPONENT SIDE (A)


02 CCD PWB
YB10210-01-01
JVC
R5224
R5223
R5226
R5225
C5227
R5228
C5229
C5228
R5229
Q5205
32
17
33
16
48
1
49
64
IC5202
R5220
C5225
R5217
R5219
C5223
R5218
C5224
C5215
X5201
C5230
R5232
R5233
R5234
R5235
C5220
R5216
Q5204
5
4
8
1
IC5203
C5218
R5214
R5213
C5219
R5215
C5239
L5205
L5203
C5213
C5217
Q5203
C5238
L5201
C5237
D5202
L5204
C5235
L5202
B
A
2
1

COMPONENT PARTS LOCATION GUIDE (CCD)

REF.No.	LOCATION		
CAPACITOR			
C5201	B	C	1A
C5202	B	C	1B
C5205	B	C	2B
C5206	B	C	2B
C5209	B	C	1A
C5210	B	C	1A
C5211	B	C	1B
C5212	B	C	2A
C5213	A	C	2A
C5214	B	C	2A
C5215	A	C	1A
C5217	A	C	2A
C5218	A	C	1A
C5219	A	C	1A
C5220	A	C	2A
C5223	A	C	1A
C5224	A	C	1A
C5225	A	C	2A
C5226	B	C	2B
C5227	A	C	2B
C5228	A	C	2A
C5229	A	C	2A
C5230	A	C	2A
C5231	B	C	1A
C5234	B	C	2B
C5235	A	C	2A
C5236	B	C	2A
C5237	A	C	2A
C5238	A	C	1A
C5239	A	C	1A
CONNECTOR			
CN51	B	C	2A
CN5201	B	C	2A
DIODE			
D5202	A	C	2A
IC			
IC5201	B	C	1A
IC5202	A	C	2B
IC5203	A	C	2A
COIL			
L5201	A	C	1A
L5202	A	C	1A
L5203	A	C	2A
L5204	A	C	2A
L5205	A	C	1A
L5206	B	C	2A
L5207	B	C	2A
L5208	B	C	2A
TRANSISTOR			
Q5203	A	C	2A
Q5204	A	C	2A
Q5205	A	C	2A
RESISTOR			
R5205	B	C	2A
R5206	B	C	2A
R5207	B	C	2A
R5208	B	C	2A
R5209	B	C	2A
R5210	B	C	2B
R5213	A	C	1A
R5214	A	C	1A
R5215	A	C	1A
R5216	A	C	2A
R5217	A	C	2A
R5218	A	C	2A
R5219	A	C	2A
R5220	A	C	2B
R5221	B	C	2B
R5222	B	C	2B
R5223	A	C	2B
R5224	A	C	2B
R5225	A	C	2B
R5226	A	C	2B
R5228	A	C	2B
R5229	A	C	2A
R5232	A	C	2A
R5233	A	C	2A
R5234	A	C	2A
R5235	A	C	2A
R5238	B	C	2B
R5239	B	C	2B
OTHER			
X5201	A	C	2A

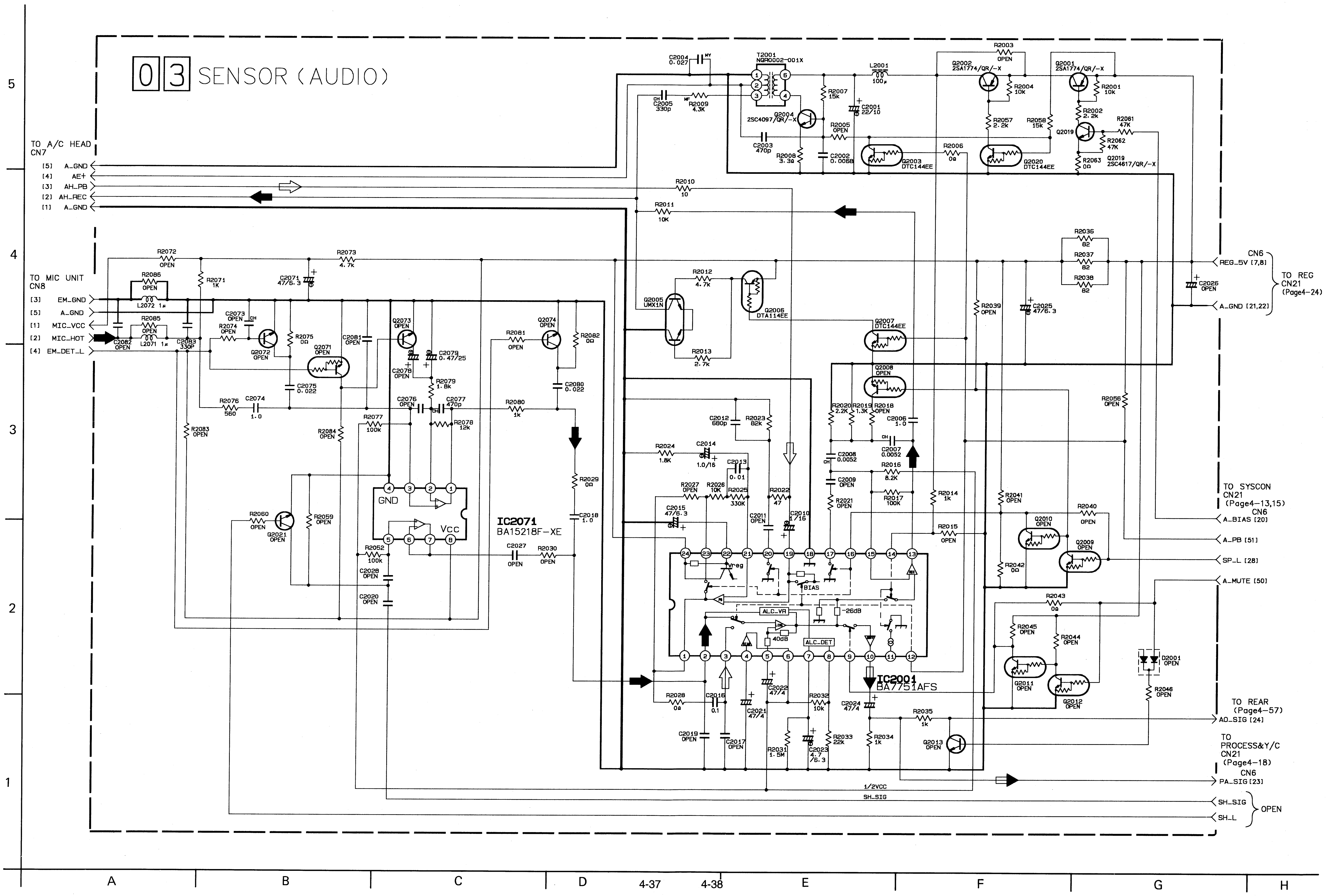
4.13 MECHA MDA SCHEMATIC DIAGRAM



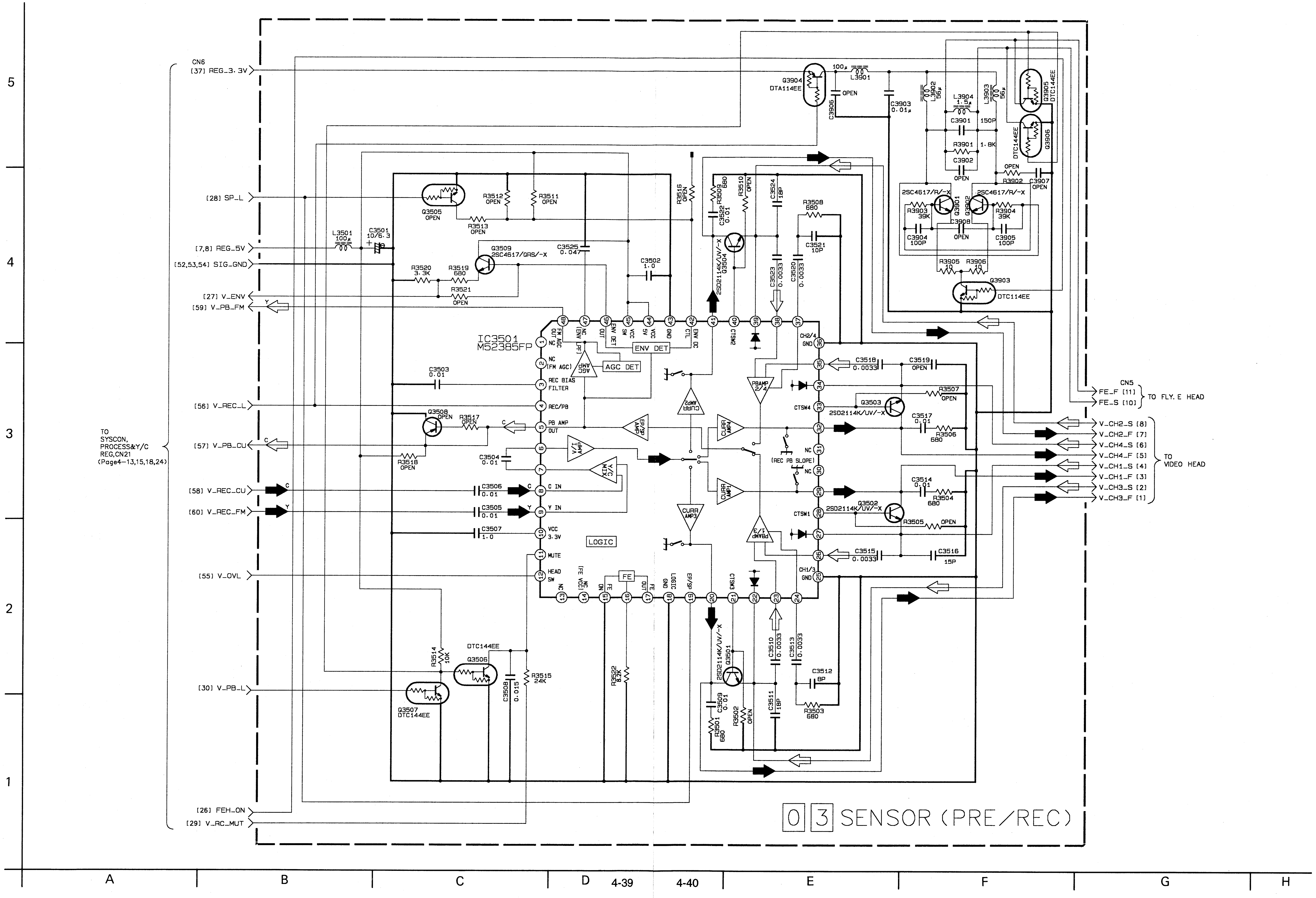
03 SENSOR (MECHA MDA)
CN6
[47] SI3
[46] SO3
[45] M_MDA_CS
[48] SCK3
[42] CAP_BRK
[43] CAP_REF
[11] CAP_FG
[14] DRUM_REF
[13] DRUM_PG
[12] DRUM_FG
TO SYSCON CN21 (page 4-13,15)
CN6
DRUM_PWR [38,39]
CAP_PWR [9,10]
CAP_ERR [44]
LM_UNREG [40,41]
REG_5V [7,8]
TO REG CN21 (page 4-24)
R1620 10K
R1621 10K
R1622 10K
R1623 10K
R1624 10K
TU_SENS
CAS_SW
TO MECHA SENSOR (page 4-41)
CAM_SW_C (CN2-1)
CAM_SW_B (CN2-2)
CAM_SW_A (CN2-3)
TO ROTARY ENCODER UNIT
WF2
C1630 OPEN
C1628 0.33
C1627 0.047
R1619 35K
C1625 0.1
C1626 0.1
R1618 18K
C1624 0.0047
R1617 47K
R1629 680K
C1629 OPEN
C1604 680P
C1602 10/10
C1603 10/10
R1601 1K
R1602 82K
C1605 0.47
R1603 1.5K
C1606 0.0015
R1604 220K
CN4
[1] LOAD_FWD
[2] LOAD_REV
TO LOADING MOTOR
C1601 0.01
61 TEST2
62 D.PGSOUT
63 D.PGOUT
64 D.PG-
65 D.FGPG+
66 D.FG-
67 D.FGOUT
68 D.FGSOUT
69 GND1
70 D.UIN
71 D.VIN
72 D.WIN
73 D.COM
74 DCC3
75 DCC2
76 DCC1
77 DCC
78 D.UH
79 D.VH
80 D.WH
60 TEST1
59 DETECT
58 START
57 D.OSC
56 D.PCV
55 D.PCI
54 D.ECR
53 D.EC
52 NC
51 GND2
50 D4
49 D3
48 D2
47 D1
46 D0
45 DOUT
44 DIN
43 CS
42 CLK
41 NC
40 C.BRK
39 C.RCC
38 C.EC
37 C.ECR
36 C.PCI
35 C.PCV
34 C.VS
33 Vcc
32 C.FG+
31 C.FG-
30 C.FGOUT
29 C.FGSOUT
28 C.HU+
27 C.HU-
26 C.HV+
25 C.HV-
24 C.HW+
23 C.HW-
22 C.WH
21 C.VH
1 GND1
2 D.U
3 D.VM
4 D.V
5 D.RNF
6 L.REF
7 D.W
8 L.FWD
9 GND2
10 L.GND
11 NC
12 UNREG
13 L.REV
14 C.U
15 NC
16 C.RNF
17 C.V
18 C.VM
19 C.W
20 C.UH
⚠ IC1601
BA6865KV
C1631 OPEN
C1632 OPEN
R1616 2K
R1615 470K
R1614 150K
C1623 0.1
C1622 0.1
R1613 1K
C1621 0.1
R1612 100K
C1620 0.022
C1619 0.022
C1618 0.022
WF1
C1612 0.22
C1613 0.22
C1611 0.22
C1610 0.22
C1607 0.022
C1608 0.022
C1609 0.022
R1605 27K
R1627 270
R1626 270
R1628 270
R1625 270
C1633 1.0
CN3
FG- [1]
M_GND [2]
FG+ [3]
REG_5V [4]
COIL_U [5]
COIL_U [6]
COIL_V [7]
COIL_V [8]
HG_W- [9]
COIL_W [10]
COIL_W [11]
HG_U- [12]
HG_BS- [13]
HG_BS+ [14]
HG_U+ [15]
HG_W+ [16]
HG_V+ [17]
HG_V- [18]
TO CAPSTAN MOTOR
R1610 1K
R1611 1K
CN6
[5,6] M_GND
[34,35] MTR_GND
R1606 0.33
R1607 68K
R1608 15K
C1614 10/16
R1609 0.68
QA1601 BA6254FS
QA1602 BA6254FS
C1617 0.1
C1616 0.1
C1615 0.1
CN1
[2] D_PFG+
[3] D_FG-
[1] D_PG-
[4] CENTER
TO DRUM MOTOR
CN1
D_COIL_U [10]
D_COIL_U [9]
D_COIL_V [8]
D_COIL_V [7]
D_COIL_W [6]
D_COIL_W [5]
DRUM MOTOR
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTE : For MECHA MDA waveforms, please refer to page 4-61.

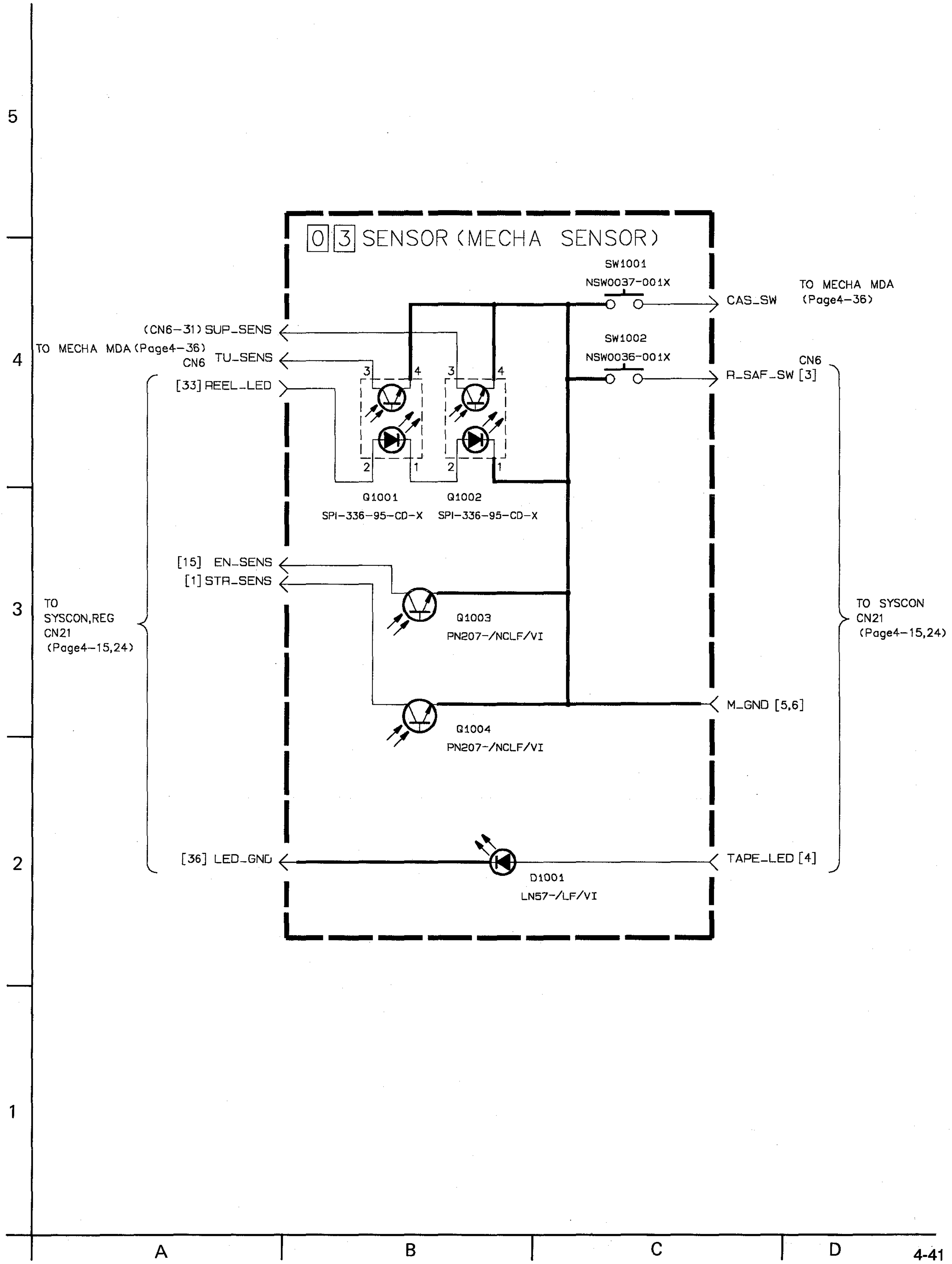
4.14 AUDIO SCHEMATIC DIAGRAM


03 SENSOR (AUDIO)
TO A/C HEAD
CN7
[5] A_GND
[4] AE+
[3] AH_PB
[2] AH_REC
[1] A_GND
TO MIC UNIT
CN8
[3] EM_GND
[5] A_GND
[1] MIC_VCC
[2] MIC_HOT
[4] EM_DET_L
T2001
NQR0002-001X
C2004 0.027
C2005 330p
R2009 4.3K
2SC4097/QR/-X
Q2004
C2003 470p
R2008 3.3Ω
R2007 15k
R2005 OPEN
C2002 0.0068
C2001 22/10
L2001 100μ
Q2003 DTC144EE
R2006 0Ω
R2003 OPEN
Q2002 2SA1774/QR/-X
R2004 10K
R2057 2.2K
R2058 15K
Q2020 DTC144EE
Q2001 2SA1774/QR/-X
R2001 10K
R2002 2.2K
Q2019
R2061 47K
R2062 47K
R2063 0Ω
Q2019 2SC4617/QR/-X
R2010 10
R2011 10K
R2036 82
R2037 82
R2038 82
CN6
REG_5V [7,8]
A_GND [21,22]
C2026 OPEN
TO REG
CN21
(Page4-24)
R2072 OPEN
R2073 4.7K
R2086 OPEN
L2072 1μ
R2071 1K
C2071 47/6.3
R2085 OPEN
L2071 1μ
C2082 OPEN
C2083 330P
C2073 OPEN
R2074 OPEN
Q2072 OPEN
R2075 0Ω
Q2071 OPEN
C2075 0.022
C2081 OPEN
Q2073 OPEN
C2078 OPEN
C2079 0.47/25
R2079 1.8k
R2081 OPEN
Q2074 OPEN
R2082 0Ω
C2080 0.022
R2076 560
C2074 1.0
C2076 OPEN
C2077 470p
R2078 12k
R2077 100K
R2080 1k
R2083 OPEN
R2084 OPEN
R2029 0Ω
C2018 1.0
GND
Vcc
IC2071
BA15218F-XE
R2060 OPEN
Q2021 OPEN
R2059 OPEN
R2052 100k
C2028 OPEN
C2020 OPEN
C2027 OPEN
R2030 OPEN
R2012 4.7K
Q2005 UMX1N
Q2006 DTA114EE
R2013 2.7K
Q2007 DTC144EE
Q2008 OPEN
R2039 OPEN
C2025 47/6.3
R2056 OPEN
C2012 680p
R2023 82K
R2024 1.8K
C2014 1.0/16
C2013 0.01
R2027 OPEN
R2026 10K
R2025 330K
R2022 47
C2015 47/6.3
C2011 OPEN
C2010 1/16
R2020 2.2K
R2019 1.3K
R2018 OPEN
C2006 1.0
C2008 0.0052
C2007 0.0052
R2016 8.2K
C2009 OPEN
R2021 OPEN
R2017 100K
R2014 1k
R2015 OPEN
R2041 OPEN
R2040 OPEN
Q2010 OPEN
Q2009 OPEN
R2042 0Ω
Vreg
BIAS
ALC_VR
-26dB
40dB
ALC_DET
IC2001
BA7751AFS
R2028 0Ω
C2016 0.1
C2019 OPEN
C2017 OPEN
C2021 47/4
C2022 47/4
R2031 1.5M
R2032 10k
C2023 4.7/6.3
R2033 22k
C2024 47/4
R2034 1k
R2035 1k
Q2013 OPEN
R2043 0Ω
R2045 OPEN
R2044 OPEN
Q2011 OPEN
Q2012 OPEN
D2001 OPEN
R2046 OPEN
TO SYSCON
CN21
(Page4-13,15)
CN6
A_BIAS [20]
A_PB [51]
SP_L [28]
A_MUTE [50]
TO REAR
(Page4-57)
AO_SIG [24]
TO
PROCESS&Y/C
CN21
(Page4-18)
CN6
PA_SIG [23]
1/2VCC
SH_SIG
SH_SIG
SH_L
OPEN
1
2
3
4
5
A
B
C
D
E
F
G
H

4.15 PRE/REC SCHEMATIC DIAGRAM


CN6
[37] REG_3.3V
[28] SP_L
[7,8] REG_5V
[52,53,54] SIG_GND
[27] V_ENV
[59] V_PB_FM
[56] V_REC_L
[57] V_PB_CU
[58] V_REC_CU
[60] V_REC_FM
[55] V_OVL
[30] V_PB_L
[26] FEH_ON
[29] V_RC_MUT
TO SYSCON, PROCESS&Y/C REG,CN21 (Page4-13,15,18,24)
IC3501 M52385FP
AGC DET
ENV DET
LOGIC
FE
Q3505 OPEN
R3512 OPEN
R3511 OPEN
R3513 OPEN
L3501 100μ
C3501 10/6.3
Q3509 2SC4617/QRS/-X
C3525 0.047
R3520 3.3K
R3519 680
R3521 OPEN
C3502 1.0
R3516 OPEN
R3509 680
C3522 0.01
R3510 OPEN
C3524 18P
R3508 680
C3521 10P
Q3504 2SD2114K/UV/-X
C3523 0.0033
C3520 0.0033
C3503 0.01
Q3508 OPEN
R3517 OPEN
R3518 OPEN
C3504 0.01
C3506 0.01
C3505 0.01
C3507 1.0
C3518 0.0033
C3519 OPEN
R3507 OPEN
Q3503 2SD2114K/UV/-X
C3517 0.01
R3506 680
C3514 0.01
R3504 680
Q3502 2SD2114K/UV/-X
R3505 OPEN
C3515 0.0033
C3516 15P
R3514 10K
Q3506 DTC144EE
C3508 0.015
R3515 24K
Q3507 DTC144EE
R3522 8.2K
Q3501 2SD2114K/UV/-X
C3509 0.01
R3501 680
R3502 OPEN
C3510 0.0033
C3513 0.0033
C3511 18P
C3512 8P
R3503 680
Q3904 DTA114EE
100μ L3901
C3906 OPEN
C3903 0.01μ
L3902 56μ
L3904 1.5μ
L3903 56μ
C3901 150P
R3901 1.8K
C3902 OPEN
Q3905 DTC144EE
Q3906 DTC144EE
R3902 OPEN
C3907 OPEN
Q3901 2SC4617/R/-X
Q3902 2SC4617/R/-X
R3903 39K
R3904 39K
C3908 OPEN
C3904 100P
C3905 100P
R3905 10
R3906 10
Q3903 DTC144EE
CN5
FE_F [11]
FE_S [10]
TO FLY. E HEAD
V_CH2_S [8]
V_CH2_F [7]
V_CH4_S [6]
V_CH4_F [5]
V_CH1_S [4]
V_CH1_F [3]
V_CH3_S [2]
V_CH3_F [1]
TO VIDEO HEAD
03 SENSOR (PRE/REC)
5
4
3
2
1
A
B
C
D
E
F
G
H

4.16 MECHA SENSOR SCHEMATIC DIAGRAM



5
4
3
2
1
A
B
C
D
03 SENSOR (MECHA SENSOR)
SW1001
NSW0037-001X
CAS_SW
TO MECHA MDA (Page4-36)
SW1002
NSW0036-001X
CN6
R_SAF_SW [3]
(CN6-31) SUP_SENS
TO MECHA MDA (Page4-36)
CN6
TU_SENS
[33] REEL_LED
Q1001
SPI-336-95-CD-X
Q1002
SPI-336-95-CD-X
[15] EN_SENS
[1] STR_SENS
Q1003
PN207-/NCLF/VI
Q1004
PN207-/NCLF/VI
M_GND [5,6]
TO SYSCON,REG CN21 (Page4-15,24)
TO SYSCON CN21 (Page4-15,24)
[36] LED_GND
D1001
LN57-/LF/VI
TAPE_LED [4]

4.17 CTL AMP SCHEMATIC DIAGRAM

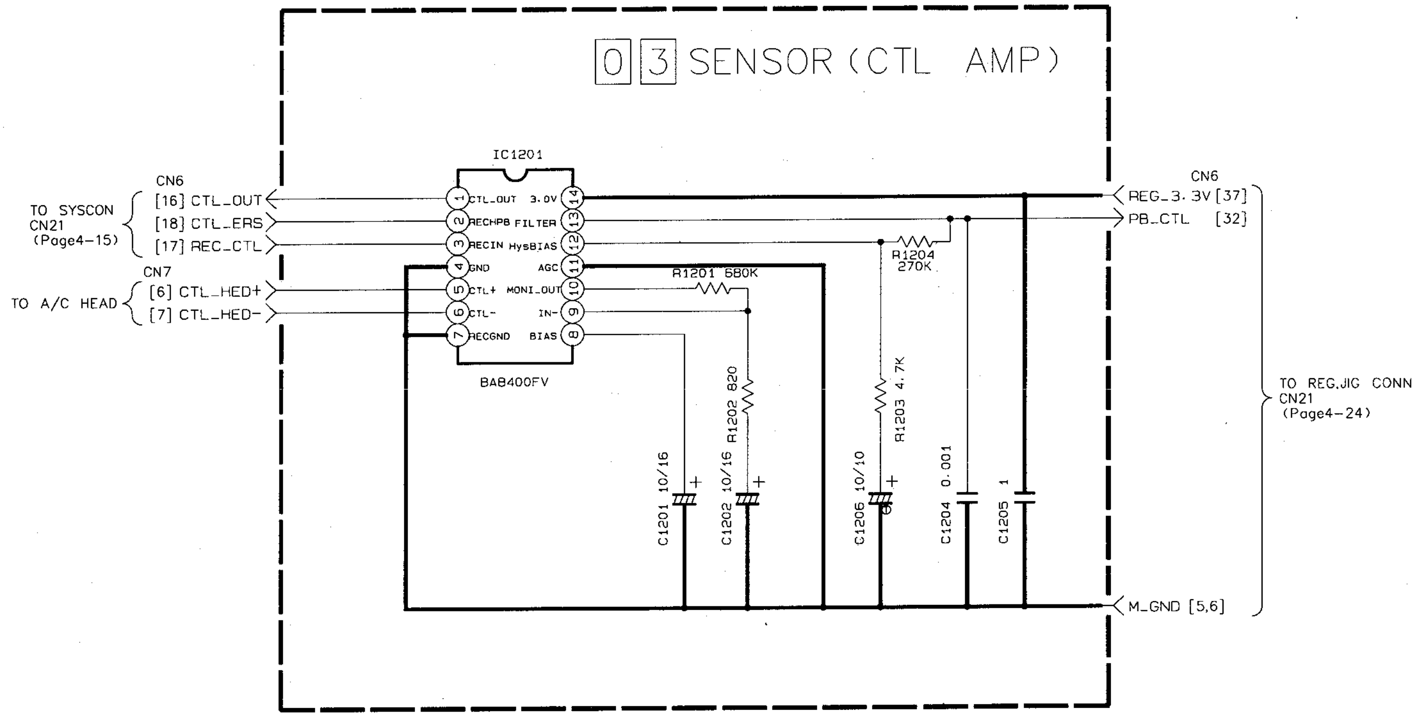
5

4

3

2

1


03 SENSOR (CTL AMP)
IC1201
BA8400FV
1 CTL_OUT
2 RECHPB
3 RECIN
4 GND
5 CTL+
6 CTL-
7 RECGND
8 BIAS
9 IN-
10 MONI_OUT
11 AGC
12 HysBIAS
13 FILTER
14 3.0V
CN6
TO SYSCON
CN21
(Page4-15)
[16] CTL_OUT
[18] CTL_ERS
[17] REC_CTL
CN7
TO A/C HEAD
[6] CTL_HED+
[7] CTL_HED-
R1201 680K
R1202 820
R1203 4.7K
R1204 270K
C1201 10/16
C1202 10/16
C1206 10/10
C1204 0.001
C1205 1
CN6
REG_3.3V [37]
PB_CTL [32]
M_GND [5,6]
TO REG.JIG CONN
CN21
(Page4-24)

A

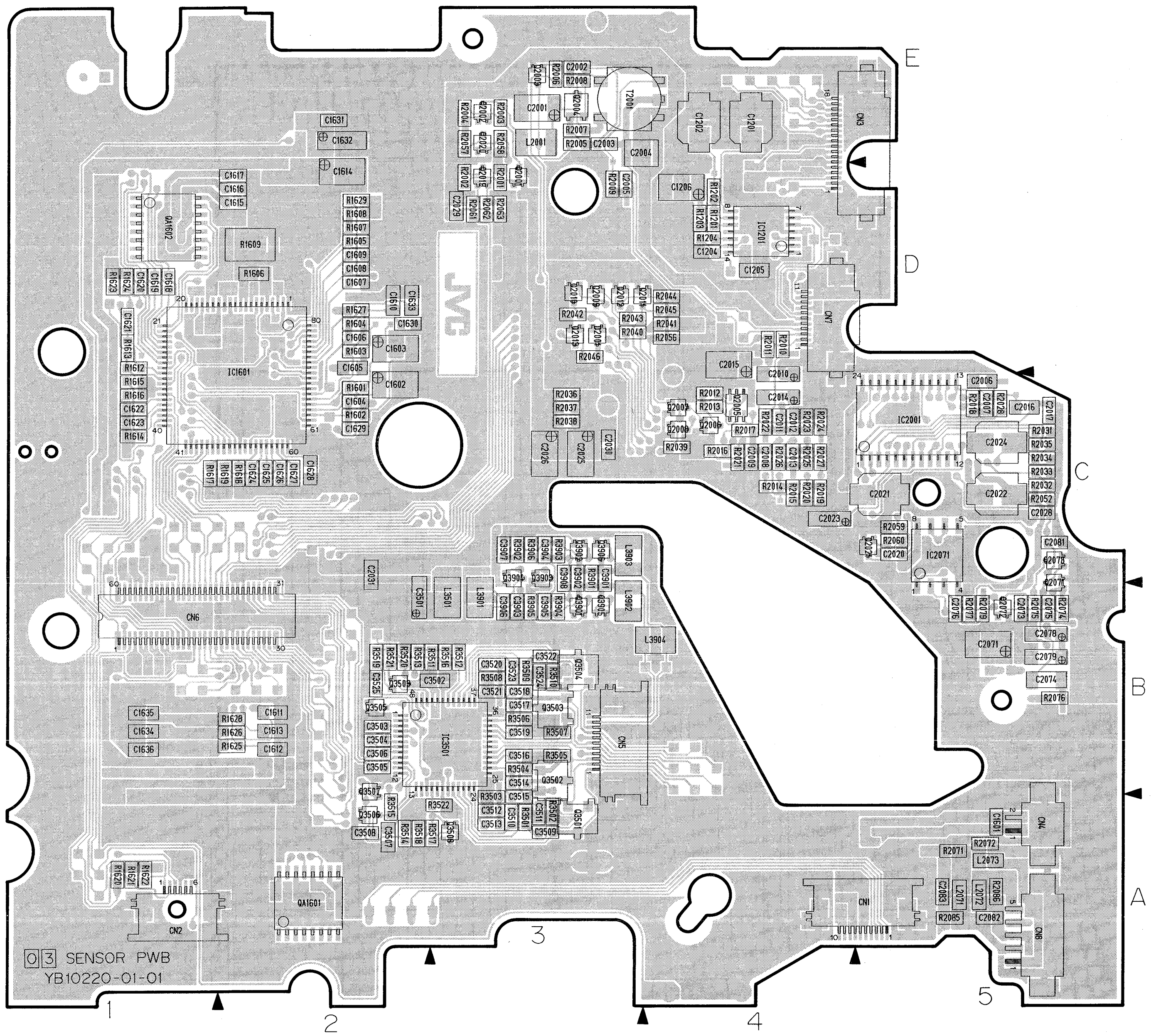
B

C

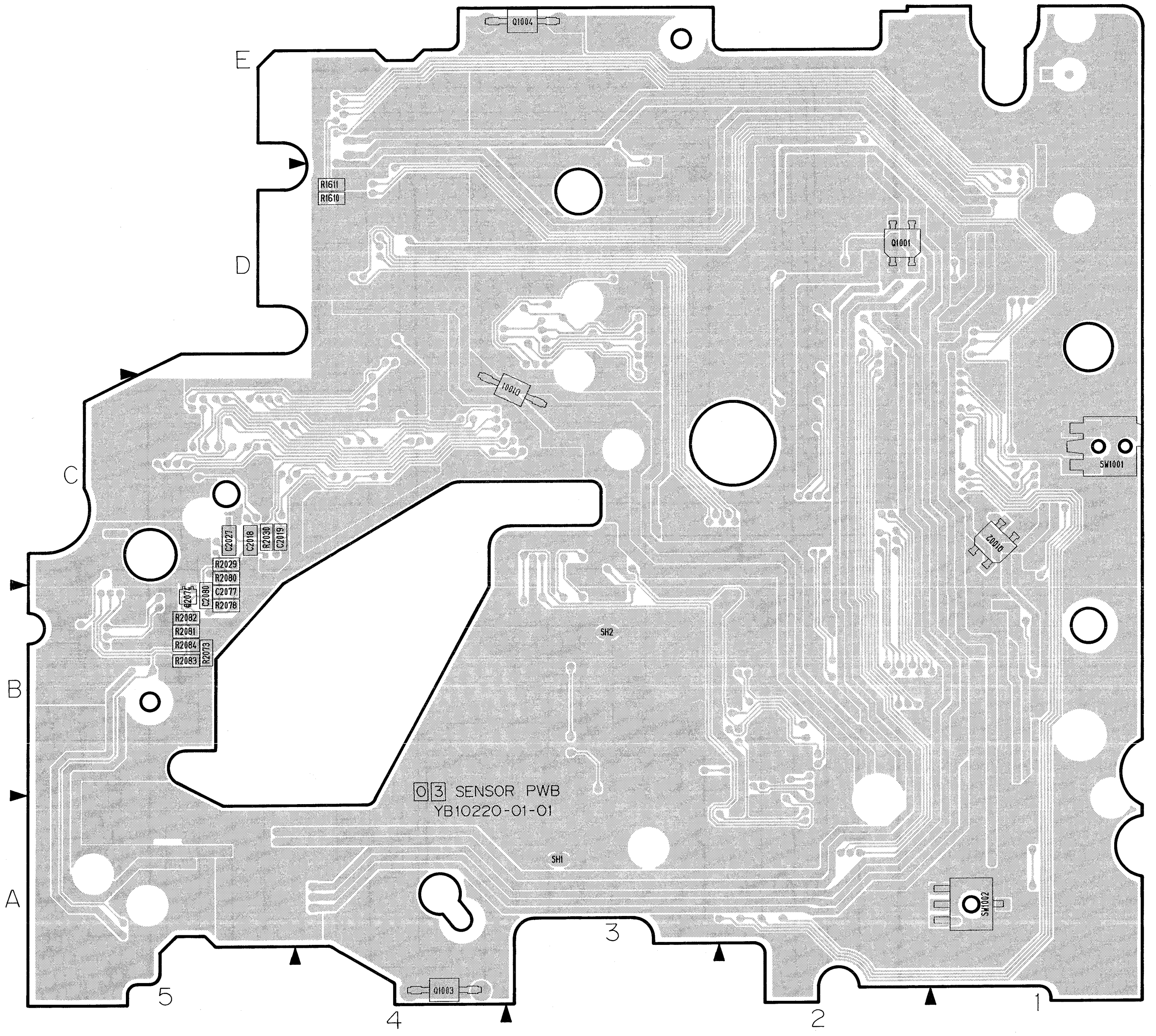
D

4.18 SENSOR CIRCUIT BOARD

FOIL SIDE (B)



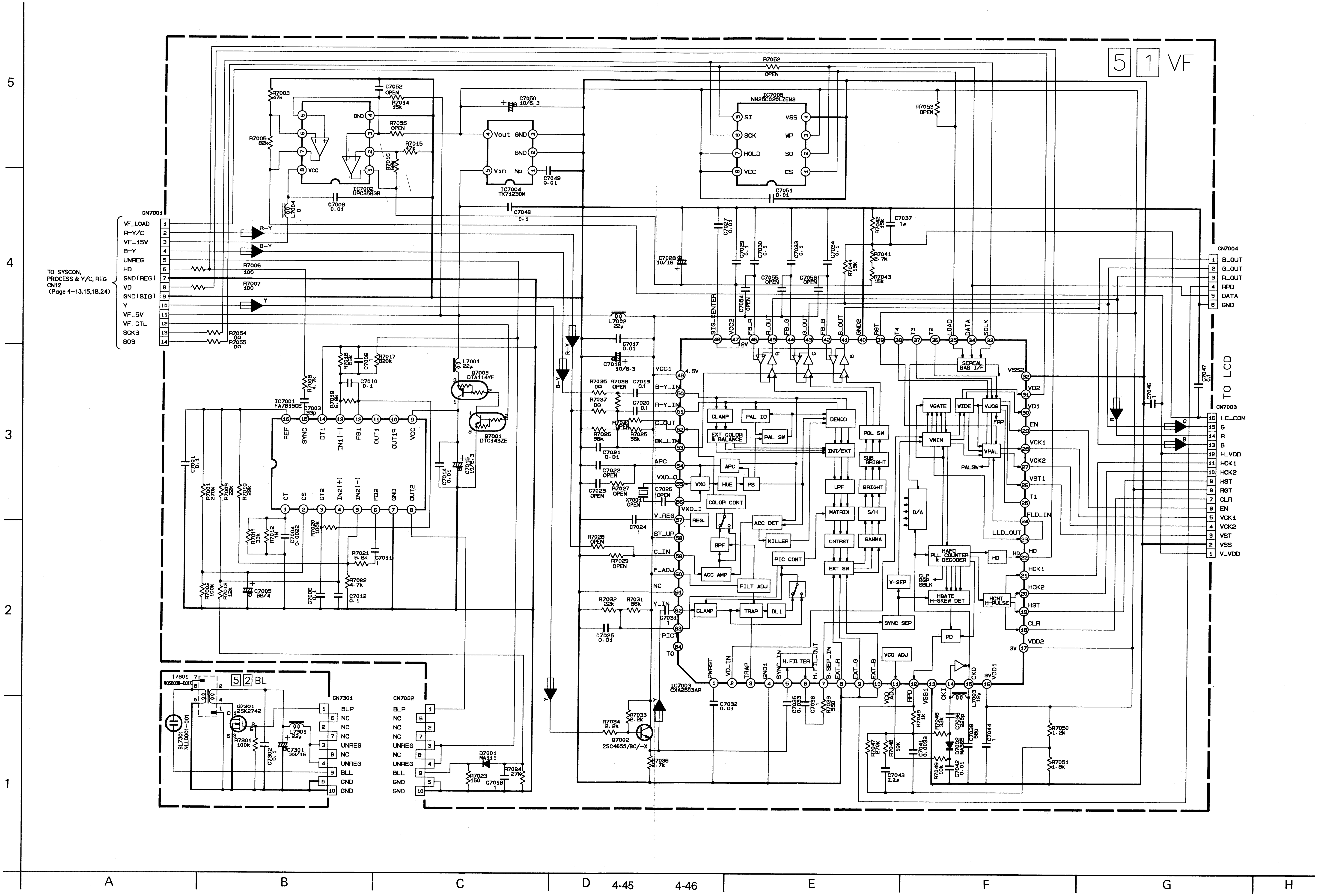
COMPONENT SIDE (A)



COMPONENT PARTS LOCATION GUIDE (SENSOR)

REF.No.	LOCATION		
CAPACITOR			
C1201	B	C	4E
C1202	B	C	4E
C1204	B	C	4D
C1205	B	C	4D
C1206	B	C	4D
C1601	B	C	5A
C1602	B	C	2C
C1603	B	C	2D
C1604	B	C	2C
C1605	B	C	2D
C1606	B	C	2D
C1607	B	C	2D
C1608	B	C	2D
C1609	B	C	2D
C1610	B	C	2D
C1611	B	C	2B
C1612	B	C	2B
C1613	B	C	2B
C1614	B	C	2D
C1615	B	C	2D
C1616	B	C	2D
C1617	B	C	2D
C1618	B	C	1D
C1619	B	C	1D
C1620	B	C	1D
C1621	B	C	1D
C1622	B	C	1C
C1623	B	C	1C
C1624	B	C	2C
C1625	B	C	2C
C1626	B	C	2C
C1627	B	C	2C
C1628	B	C	2C
C1629	B	C	2C
C1630	B	C	2D
C1631	B	C	2E
C1632	B	C	2E
C1633	B	C	2D
C1634	B	C	1B
C1635	B	C	1B
C1636	B	C	1B
C2001	B	C	3E
C2002	B	C	3E
C2003	B	C	3E
C2004	B	C	3E
C2005	B	C	3D
C2006	B	C	5C
C2007	B	C	5C
C2008	B	C	4C
C2009	B	C	4C
C2010	B	C	4D
C2011	B	C	4C
C2012	B	C	4C
C2013	B	C	4C
C2014	B	C	4C
C2015	B	C	4D
C2016	B	C	5C
C2017	B	C	5C
C2018	A	C	5C
C2019	A	C	5C
C2020	B	C	5C
C2021	B	C	5C
C2022	B	C	5C
C2023	B	C	4C
C2024	B	C	5C
C2025	B	C	3C
C2026	B	C	3C
C2027	A	C	5C
C2028	B	C	5C
C2029	B	C	3D
C2030	B	C	3C
C2031	B	C	2C
C2071	B	C	5B
C2073	B	C	5B
C2074	B	C	5B
C2075	B	C	5B
C2076	B	C	5B
C2077	A	C	5B
C2078	B	C	5B
C2079	B	C	5B
C2080	A	C	5B
C2081	B	C	5C
C2082	B	C	5A
C2083	B	C	5A
C3501	B	C	2B
C3502	B	C	3B
C3503	B	C	2B
C3504	B	C	2B
C3505	B	C	2B
C3506	B	C	2B
C3507	B	C	2A
C3508	B	C	2A
C3509	B	C	3A
C3510	B	C	3A
C3511	B	C	3A
C3512	B	C	3A
C3513	B	C	3A
C3514	B	C	3B
C3515	B	C	3B
C3516	B	C	3B
C3517	B	C	3B
C3518	B	C	3B
C3519	B	C	3B
C3520	B	C	3B
C3521	B	C	3B
C3522	B	C	3B
C3523	B	C	3B
C3524	B	C	3B
C3525	B	C	2B
C3901	B	C	3C
C3902	B	C	3C
C3903	B	C	3B
C3904	B	C	3C
C3905	B	C	3B
C3906	B	C	3B
C3907	B	C	3C
C3908	B	C	3C
CONNECTOR			
CN1	B	C	5A
CN2	B	C	1A
CN3	B	C	4D
CN4	B	C	5A
CN5	B	C	3B
CN6	B	C	1B
CN7	B	C	4D
CN8	B	C	5A
DIODE			
D1001	A	D	3C
D2001	B	C	3D
IC			
IC1201	B	C	4D
IC1601	B	C	2D
IC2001	B	C	5C
IC2071	B	C	5C
IC3501	B	C	3B
COIL			
L2001	B	C	3E
L2071	B	C	5A
L2072	B	C	5A
L2073	B	C	5A
L3501	B	C	3B
L3901	B	C	3B
L3902	B	C	3B
L3903	B	C	3C
L3904	B	C	4B
TRANSISTOR			
Q1001	A	C	2D
Q1002	A	C	1C
Q1003	A	D	4A
Q1004	A	D	3E
Q2001	B	C	3D
Q2002	B	C	3E
Q2003	B	C	3E
Q2004	B	C	3E
Q2005	B	C	4C
Q2006	B	C	4C
Q2007	B	C	4C
Q2008	B	C	4C
Q2009	B	C	3D
Q2010	B	C	3D
Q2011	B	C	3D
Q2012	B	C	3D
Q2013	B	C	3D
Q2019	B	C	3D
Q2020	B	C	3E
Q2021	B	C	5C
Q2071	B	C	5C
Q2072	B	C	5B
Q2073	B	C	5C
Q2074	A	C	5B
Q3501	B	C	3A
Q3502	B	C	3B
Q3503	B	C	3B
Q3504	B	C	3B
Q3505	B	C	2B
Q3506	B	C	2A
Q3507	B	C	2B
Q3508	B	C	3A
Q3509	B	C	2B
Q3901	B	C	3B
Q3902	B	C	3C
Q3903	B	C	3C
Q3904	B	C	3C
Q3905	B	C	3B
Q3906	B	C	3C
QA1601	B	C	2A
QA1602	B	C	1D
RESISTOR			
R1201	B	C	4D
R1202	B	C	4D
R1203	B	C	4D
R1204	B	C	4D
R1601	B	C	2C
R1602	B	C	2C
R1603	B	C	2D
R1604	B	C	2D
R1605	B	C	2D
R1606	B	C	2D
R1607	B	C	2D
R1608	B	C	2D
R1609	B	C	2D
R1610	A	C	4D
R1611	A	C	4D
R1612	B	C	1D
R1613	B	C	1D
R1614	B	C	1C
R1615	B	C	1C
R1616	B	C	1C
R1617	B	C	1C
R1618	B	C	2C
R1619	B	C	2C
R1620	B	C	1A
R1621	B	C	1A
R1622	B	C	1A
R1623	B	C	1D
R1624	B	C	1D
R1625	B	C	2B
R1626	B	C	2B
R1627	B	C	2D
R1628	B	C	2B
R1629	B	C	2D
R2001	B	C	3D
R2002	B	C	3D
R2003	B	C	3E
R2004	B	C	3E
R2005	B	C	3E
R2006	B	C	3E
R2007	B	C	3E
R2008	B	C	3E
R2009	B	C	3D
R2010	B	C	4D
R2011	B	C	4D
R2012	B	C	4C
R2013	B	C	4C
R2014	B	C	4C
R2015	B	C	4C
R2016	B	C	4C
R2017	B	C	4C
R2018	B	C	5C
R2019	B	C	4C
R2020	B	C	4C
R2021	B	C	4C
R2022	B	C	4C
R2023	B	C	4C
R2024	B	C	4C
R2025	B	C	4C
R2026	B	C	4C
R2027	B	C	4C
R2028	B	C	5C
R2029	A	C	5C
R2030	A	C	5C
R2031	B	C	5C
R2032	B	C	5C
R2033	B	C	5C
R2034	B	C	5C
R2035	B	C	5C
R2036	B	C	3C
R2037	B	C	3C
R2038	B	C	3C
R2039	B	C	4C
R2040	B	C	3D
R2041	B	C	4D
R2042	B	C	3D
R2043	B	C	3D
R2044	B	C	4D
R2045	B	C	4D
R2046	B	C	3D
R2052	B	C	5C
R2056	B	C	4D
R2057	B	C	3E
R2058	B	C	3E
R2059	B	C	5C
R2060	B	C	5C
R2061	B	C	3D
R2062	B	C	3D
R2063	B	C	3D
R2071	B	C	5A
R2072	B	C	5A
R2073	A	C	5B
R2074	B	C	5B
R2075	B	C	5B
R2076	B	C	5B
R2077	B	C	5B
R2078	A	C	5B
R2079	B	C	5B
R2080	A	C	5C
R2081	A	C	5B
R2082	A	C	5B
R2083	A	C	5B
R2084	A	C	5B
R2085	B	C	5A
R2086	B	C	5A
R3501	B	C	3A
R3502	B	C	3A
R3503	B	C	3B
R3504	B	C	3B
R3505	B	C	3B
R3506	B	C	3B
R3507	B	C	3B
R3508	B	C	3B
R3509	B	C	3B
R3510	B	C	3B
R3511	B	C	2B
R3512	B	C	3B
R3513	B	C	2B
R3514	B	C	2A
R3515	B	C	2A
R3516	B	C	3B
R3517	B	C	2A
R3518	B	C	2A
R3519	B	C	2B
R3520	B	C	2B
R3521	B	C	2B
R3522	B	C	3A
R3901	B	C	3C
R3902	B	C	3C
R3903	B	C	3C
R3904	B	C	3B
R3905	B	C	3B
R3906	B	C	3C
OTHER			
SW1001	A	C	1C
SW1002	A	C	1A
T2001	B	C	3E

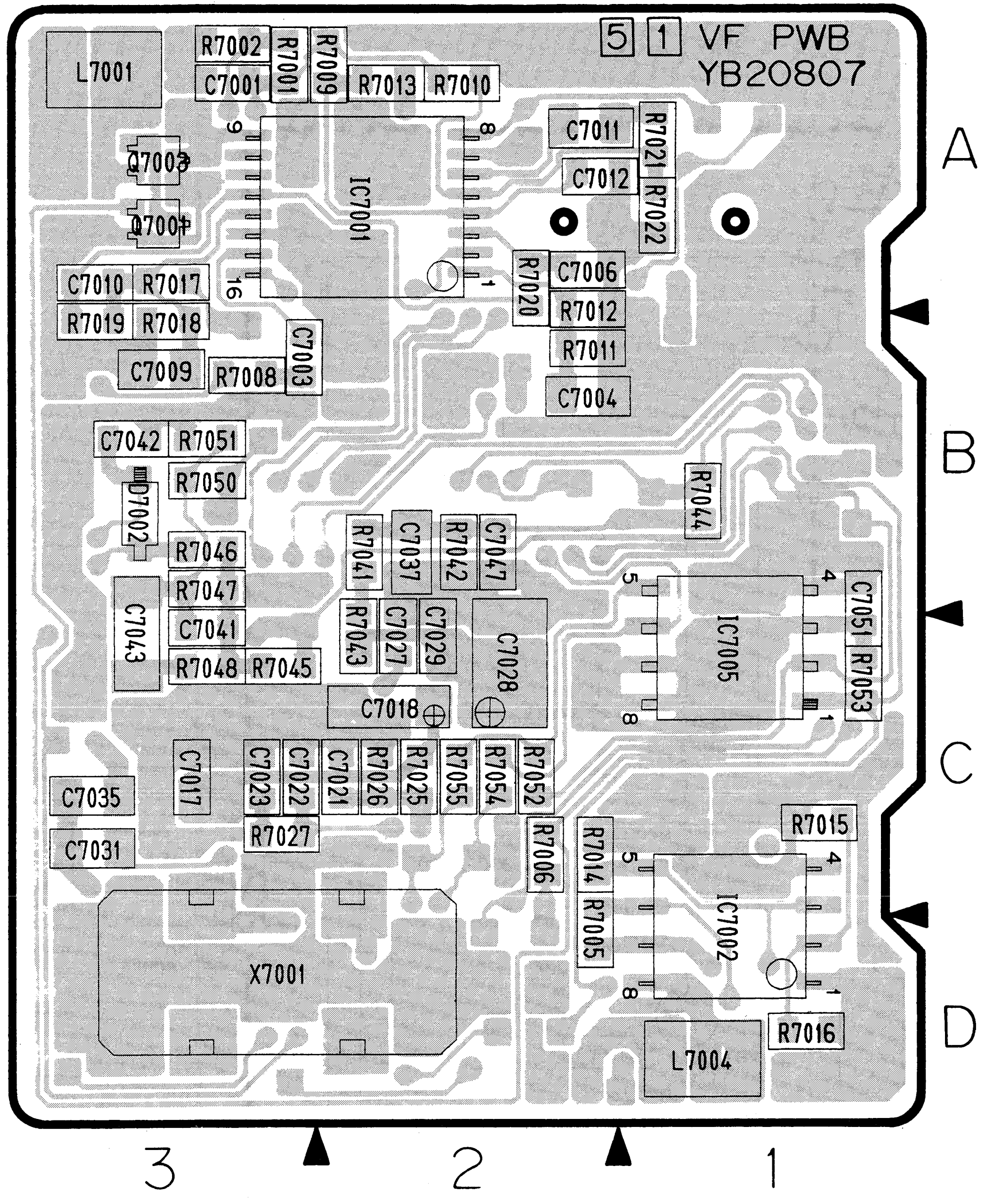
4.19 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM (FOR AX380EG)


5
4
3
2
1
A
B
C
D
E
F
G
H
5 1 VF
5 2 BL
TO SYSCON, PROCESS & Y/C, REG CN12 (Page 4-13,15,18,24)
CN7001
VF_LOAD 1
R-Y/C 2
VF_15V 3
B-Y 4
UNREG 5
HD 6
GND(REG) 7
VD 8
GND(SIG) 9
Y 10
VF_5V 11
VF_CTL 12
SCK3 13
SO3 14
R-Y
B-Y
Y
R7006 100
R7007 100
R7054 0Ω
R7055 0Ω
IC7002 UPC358GR
R7003 47k
R7005 82k
C7052 OPEN
R7014 15k
R7056 OPEN
R7015 47k
R7016 68k
C7008 0.01
L7004 0
GND
VCC
IC7004 TK71230M
Vout
Vin
Np
C7050 10/6.3
C7049 0.01
C7048 0.1
IC7005 NM25C020LZEM8
SI
SCK
HOLD
VCC
VSS
WP
SO
CS
C7051 0.01
R7052 OPEN
R7053 OPEN
IC7001 FA7615CE
REF
SYNC
DT1
IN1(-)
FB1
OUT1
OUT1R
VCC
CT
CS
DT2
IN2(+)
IN2(-)
FB2
GND
OUT2
C7003 33p
R7008 4.7k
R7018 56k
C7009 1
R7017 820k
C7010 0.1
R7019 6.8k
C7001 0.1
R7001 270k
R7009 22k
R7010 22k
R7011 33k
R7012 1M
C7004 0.0022
R7020 100k
R7021 6.8k
C7011 1
R7022 4.7k
C7012 0.1
C7006 0.1
R7002 100k
R7013 12k
C7005 68/4
L7001 22μ
Q7003 DTA114YE
Q7001 DTC143ZE
C7014 0.01
C7015 10/6.3
L7002 22μ
C7017 0.01
C7018 10/6.3
C7028 10/16
C7027 0.01
C7029 0.1
C7030 0.1
C7033 0.1
C7034 0.1
C7054 OPEN
C7055 OPEN
C7056 OPEN
R7042 15k
C7037 1μ
R7041 6.7k
R7044 15k
R7043 15k
R7035 0Ω
R7038 OPEN
C7019 0.1
R7037 0Ω
C7020 0.1
R7040 OPEN
R7026 56k
R7025 56k
C7021 0.01
C7022 OPEN
C7023 OPEN
R7027 OPEN
X7001 OPEN
C7026 OPEN
C7024 1
R7028 OPEN
R7029 OPEN
R7032 22k
R7031 56k
C7031 1
C7025 0.01
IC7003 CXA2503AR
SIG_CENTER
VCC2
FB_R
R_OUT
FB_G
G_OUT
FB_B
B_OUT
GND2
RGT
T4
T3
T2
LOAD
DATA
SCLK
VCC1
B-Y_IN
R-Y_IN
C_OUT
BK_LIM
APC
VXO_O
VXO_I
V_REG
ST_UP
C_IN
F_ADJ
NC
Y_IN
PICT
TO
PWRST
VD_IN
TRAP
GND1
SYNC_IN
H.FIL_OUT
S.SEP_IN
EXT_R
EXT_G
EXT_B
VCO ADJ
RPD
VSS1
CKI
CKO
VDD1
VDD2
CLR
HST
HCK2
HCK1
HD
LLD_OUT
FLD_IN
T1
VST1
VCK2
VCK1
EN
VD1
VD2
VSS2
4.5V
12V
3V
CLAMP
PAL ID
DEMOD
EXT COLOR & BALANCE
PAL SW
INT/EXT
POL SW
SUB BRIGHT
APC
VXO
HUE
PS
LPF
BRIGHT
COLOR CONT
MATRIX
S/H
REG.
ACC DET
BPF
KILLER
CNTRST
GAMMA
PIC CONT
EXT SW
ACC AMP
FILT ADJ
CLAMP
TRAP
DL1
H.FILTER
SYNC SEP
VCO ADJ
D/A
V-SEP
SEREAL BUS I/F
VGATE
WIDE
VJOG
FRP
VWIN
VPAL
PALSW
HAFC PLL COUNTER & DECODER
HD
CLP BGP SBLK
HGATE H-SKEW DET
HCNT H-PULSE
PD
C7032 0.01
C7035 0.033
C7036 1
R7039 560
R7045 1k
R7046 33k
C7038 220p
C7039 68p
L7003 12μ
C7044 1
R7047 270k
R7048 10k
C7041 0.0033
D7002 MA365
R7049 10k
C7042 0.01
C7043 2.2μ
R7050 1.2k
R7051 1.8k
R7033 2.2k
R7034 2.2k
Q7002 2SC4655/BC/-X
R7036 2.7k
C7046 1
C7047 0.1
TO LCD
CN7004
1 B_OUT
2 G_OUT
3 R_OUT
4 RPD
5 DATA
6 GND
CN7003
16 LC_COM
15 G
14 R
13 B
12 H_VDD
11 HCK1
10 HCK2
9 HST
8 RGT
7 CLR
6 EN
5 VCK1
4 VCK2
3 VST
2 VSS
1 V_VDD
R
G
B
T7301 MQS0009-001X
BL7301 NLL0001-001
Q7301 2SK2742
R7301 100k
C7302 0.1
L7301 22μ
C7301 33/16
CN7301
1 BLP
6 NC
2 NC
7 NC
3 UNREG
8 NC
4 UNREG
9 BLL
5 GND
10 GND
CN7002
BLP 1
NC 6
NC 2
NC 7
UNREG 3
NC 8
UNREG 4
BLL 9
GND 5
GND 10
D7001 MA111
R7023 150
C7016 1
R7024 27k

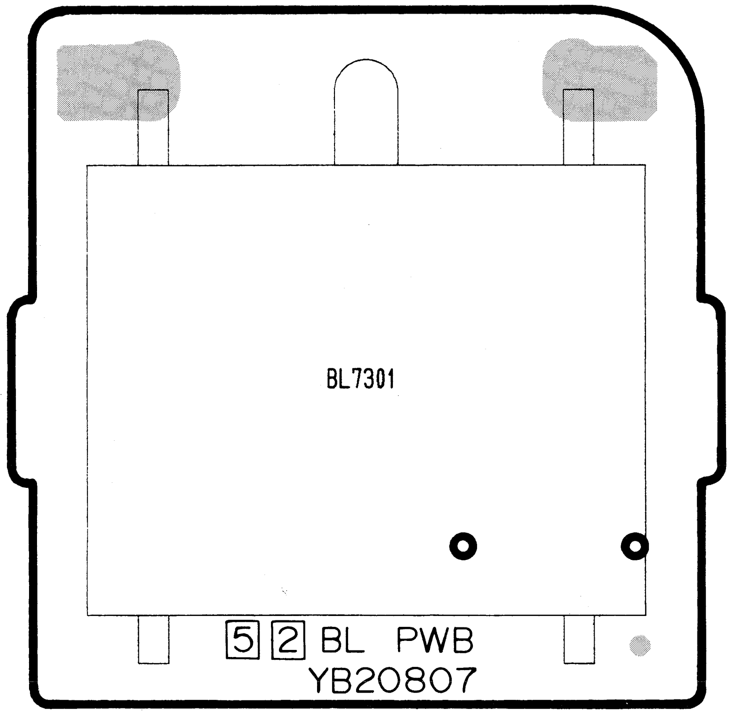
4.20 ELECTRONIC VIEWFINDER SDIRCUIT BOARD (FOR AX380EG)

-VF-

FOIL SIDE (B)


5 1 VF PWB
YB20807
L7001
R7002
R7001
R7009
C7001
R7013
R7010
C7011
R7021
C7012
R7022
IC7001
Q7003
Q7001
C7010
R7017
R7019
R7018
C7009
R7008
C7003
R7020
C7006
R7012
R7011
C7004
C7042
R7051
R7050
D7002
R7046
R7047
C7041
C7043
R7048
R7045
R7041
C7037
R7042
C7047
R7043
C7027
C7029
C7028
C7018
R7044
IC7005
C7051
R7053
C7035
C7031
C7017
C7023
C7022
C7021
R7026
R7025
R7055
R7054
R7052
R7027
R7006
R7014
R7005
R7015
IC7002
R7016
L7004
X7001
A
B
C
D
3
2
1

-BL-


BL7301
5 2 BL PWB
YB20807

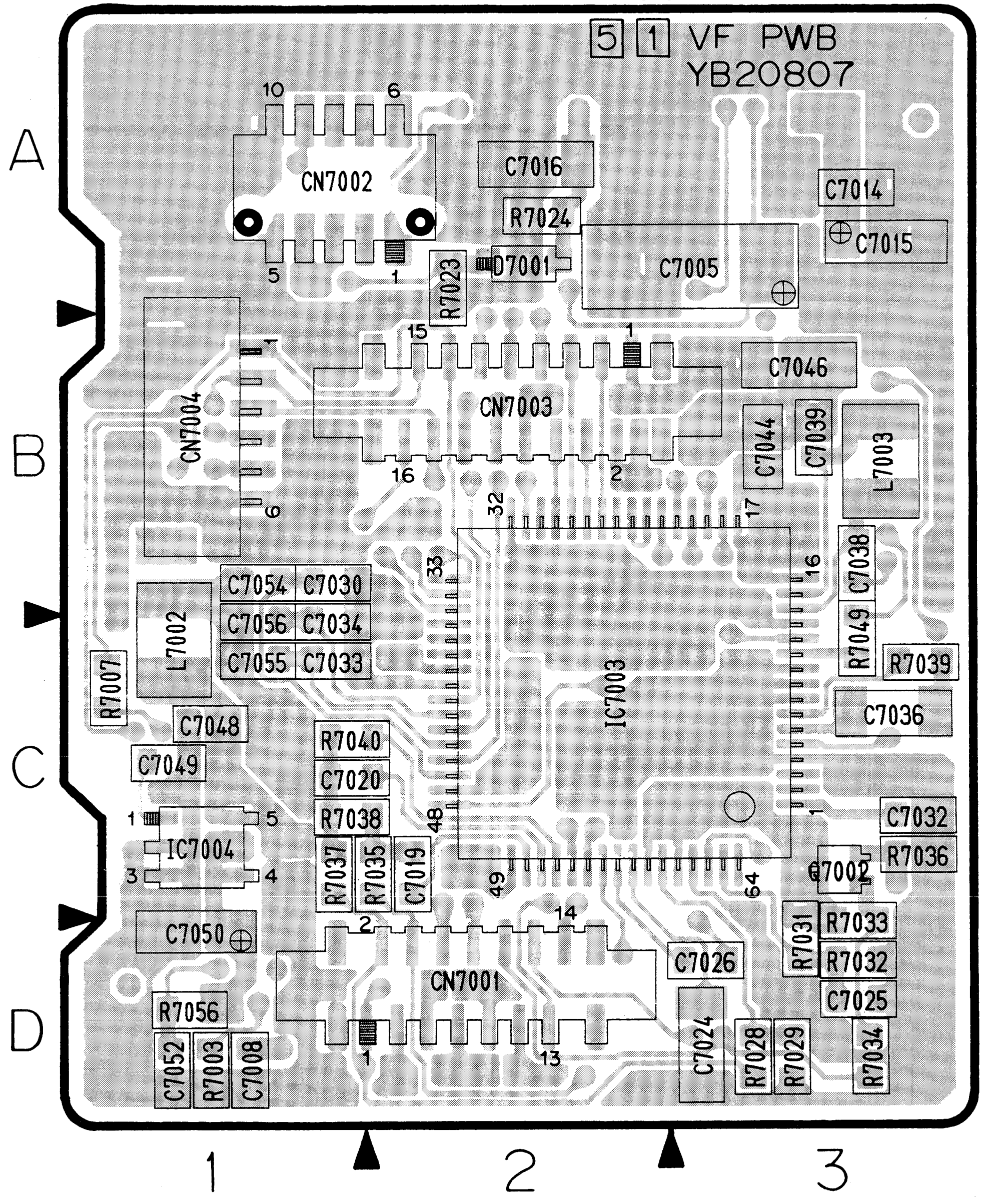
COMPONENT PARTS LOCATION GUIDE (VF)

REF.No.	LOCATION		
CAPACITOR			
C7001	B	C	3A
C7003	B	C	3B
C7004	B	C	2B
C7005	A	C	3A
C7006	B	C	2A
C7008	A	C	1D
C7009	B	C	3B
C7010	B	C	3A
C7011	B	C	2A
C7012	B	C	2A
C7014	A	C	3A
C7015	A	C	3A
C7016	A	C	2A
C7017	B	C	3C
C7018	B	C	2C
C7019	A	C	2C
C7020	A	C	1C
C7021	B	C	2C
C7022	B	C	3C
C7023	B	C	3C
C7024	A	C	3D
C7025	A	C	3D
C7026	A	C	3D
C7027	B	C	2C
C7028	B	C	2C
C7029	B	C	2C
C7030	A	C	1B
C7031	B	C	3C
C7032	A	C	3C
C7033	A	C	1C
C7034	A	C	1C
C7035	B	C	3C
C7036	A	C	3C
C7037	B	C	2B
C7038	A	C	3B
C7039	A	C	3B
C7041	B	C	3C
C7042	B	C	3B
C7043	B	C	3C
C7044	A	C	3B
C7046	A	C	3B
C7047	B	C	2B
C7048	A	C	1C
C7049	A	C	1C
C7050	A	C	1D
C7051	B	C	1B
C7052	A	C	1D
C7054	A	C	1B
C7055	A	C	1C
C7056	A	C	1C
CONNECTOR			
CN7001	A	C	2D
CN7002	A	C	2A
CN7003	A	C	2B
CN7004	A	C	1B
DIODE			
D7001	A	C	2A
D7002	B	C	3B
IC			
IC7001	B	C	2A
IC7002	B	C	1D
IC7003	A	C	2C
IC7004	A	C	1C
IC7005	B	C	1C
COIL			
L7001	B	C	3A
L7002	A	C	1C
L7003	A	C	3B
L7004	B	C	1D

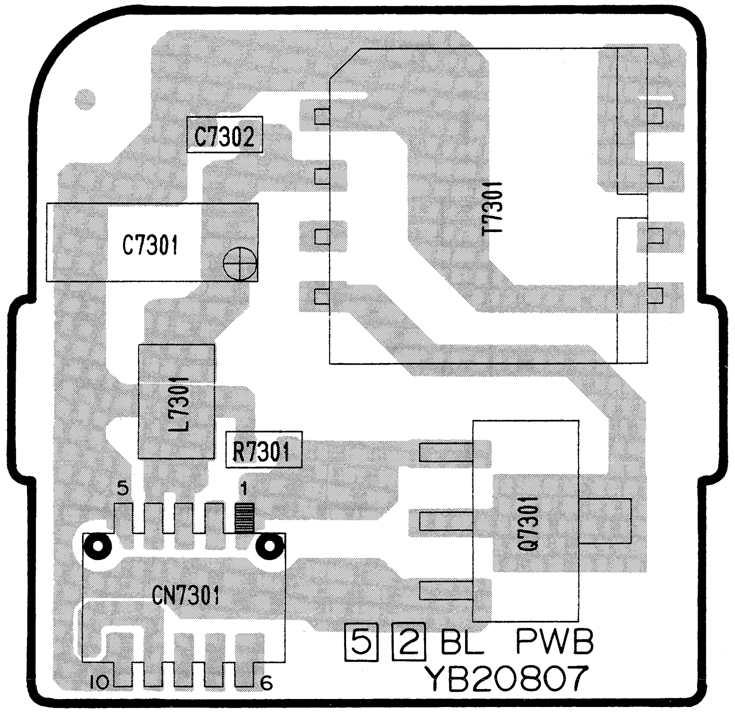
REF.No.	LOCATION		
TRANSISTOR			
Q7001	B	C	3A
Q7002	A	C	3C
Q7003	B	C	3A
RESISTOR			
R7001	B	C	3A
R7002	B	C	3A
R7003	A	C	1D
R7005	B	C	2D
R7006	B	C	2C
R7007	A	C	1C
R7008	B	C	3B
R7009	B	C	2A
R7010	B	C	2A
R7011	B	C	2B
R7012	B	C	2A
R7013	B	C	2A
R7014	B	C	2C
R7015	B	C	1C
R7016	B	C	1D
R7017	B	C	3A
R7018	B	C	3B
R7019	B	C	3B
R7020	B	C	2A
R7021	B	C	1A
R7022	B	C	1A
R7023	A	C	2A
R7024	A	C	2A
R7025	B	C	2C
R7026	B	C	2C
R7027	B	C	3C
R7028	A	C	3D
R7029	A	C	3D
R7031	A	C	3D
R7032	A	C	3D
R7033	A	C	3D
R7034	A	C	3D
R7035	A	C	2C
R7036	A	C	3C
R7037	A	C	1C
R7038	A	C	1C
R7039	A	C	3C
R7040	A	C	1C
R7041	B	C	2B
R7042	B	C	2B
R7043	B	C	2C
R7044	B	C	1B
R7045	B	C	3C
R7046	B	C	3B
R7047	B	C	3B
R7048	B	C	3C
R7049	A	C	3C
R7050	B	C	3B
R7051	B	C	3B
R7052	B	C	2C
R7053	B	C	1C
R7054	B	C	2C
R7055	B	C	2C
R7056	A	C	1D
OTHER			
X7001	B	C	3D

-VF-

COMPONENT SIDE (A)

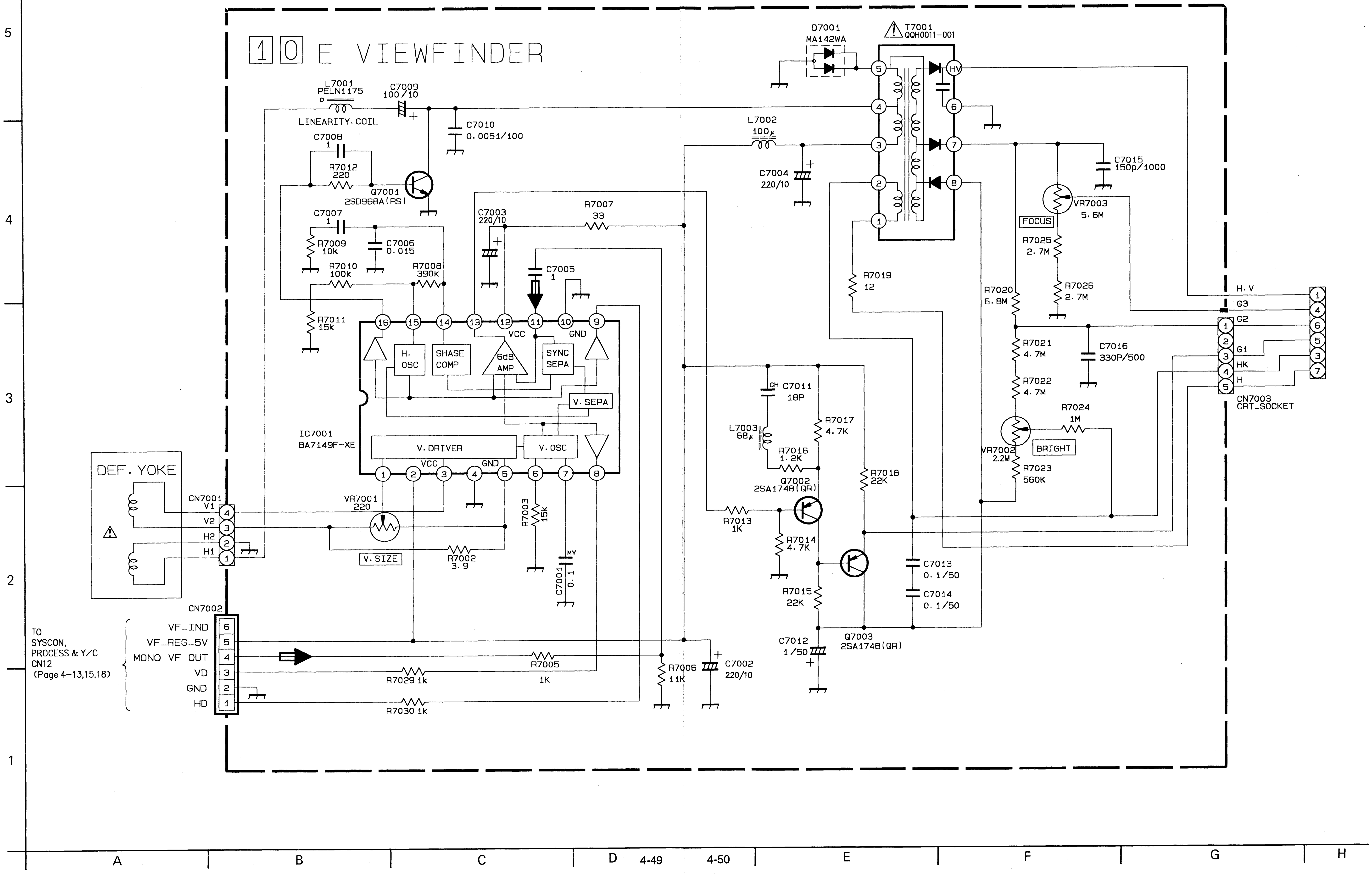

5 1 VF PWB
YB20807
CN7002
C7016
R7024
C7014
C7015
D7001
R7023
C7005
CN7004
CN7003
C7046
C7044
C7039
L7003
C7054
C7030
C7056
C7034
C7055
C7033
L7002
R7007
IC7003
C7038
R7049
R7039
C7036
C7048
C7049
R7040
C7020
R7038
IC7004
R7037
R7035
C7019
C7032
Q7002
R7036
C7050
CN7001
R7031
R7033
R7032
C7026
C7025
R7056
C7052
R7003
C7008
C7024
R7028
R7029
R7034
A
B
C
D
1
2
3

-BL-


C7302
C7301
T7301
L7301
R7301
Q7301
CN7301
5 2 BL PWB
YB20807

4.21 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM (FOR AX280EG/480EG)

<TYPE T>

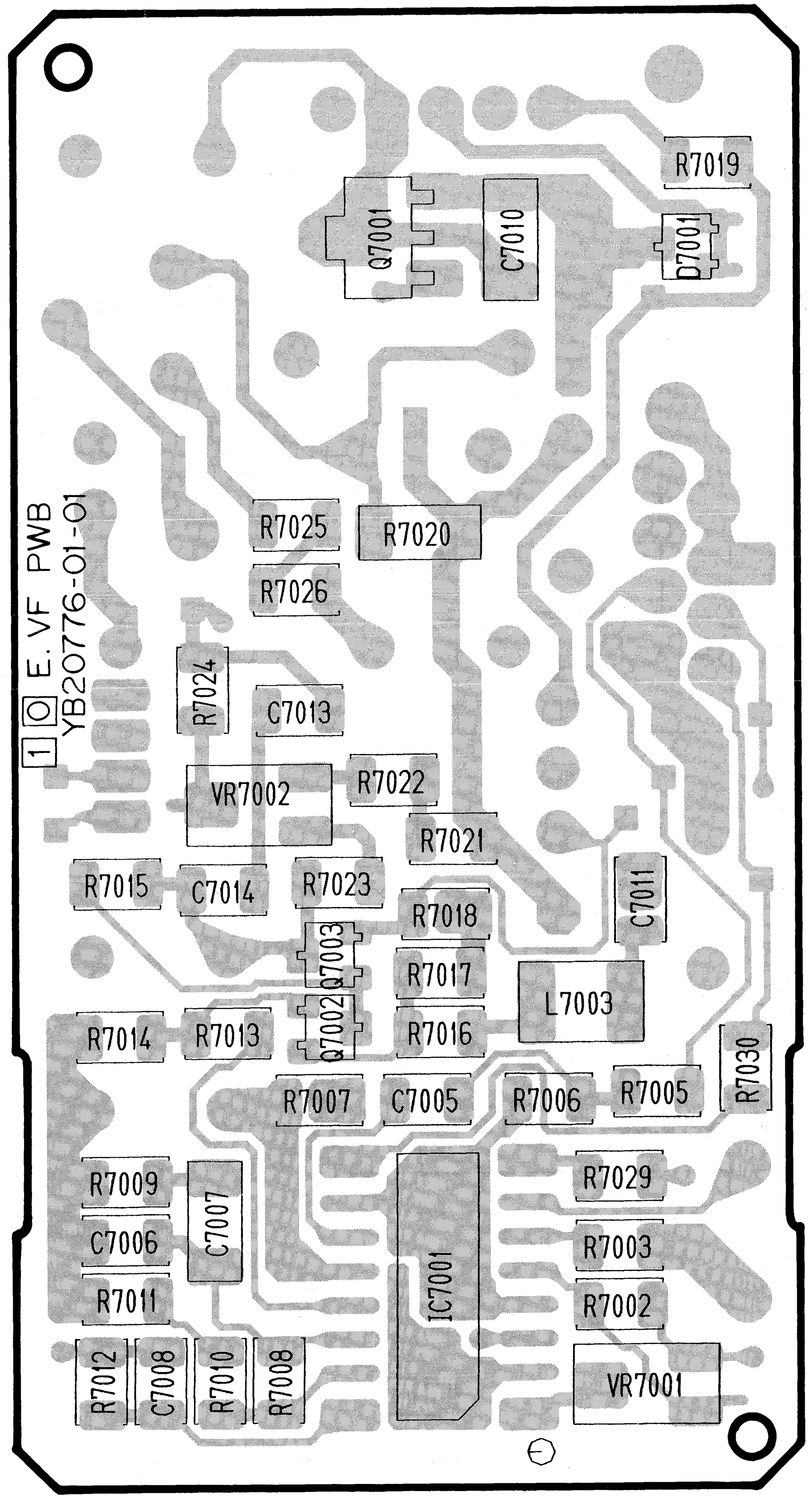


10 E VIEWFINDER
L7001
PELN1175
LINEARITY. COIL
C7009
100/10
C7010
0.0051/100
C7008
1
R7012
220
Q7001
2SD968A(RS)
C7007
1
R7009
10k
C7006
0.015
R7010
100k
R7008
390k
R7011
15k
C7003
220/10
R7007
33
C7005
1
IC7001
BA7149F-XE
H. OSC
SHASE COMP
6dB AMP
VCC
SYNC SEPA
GND
V. SEPA
V. DRIVER
V. OSC
DEF. YOKE
CN7001
V1
V2
H2
H1
VR7001
220
V. SIZE
R7002
3.9
R7003
15K
C7001
0.1
MY
CN7002
TO SYSCON, PROCESS & Y/C CN12 (Page 4-13,15,18)
VF_IND
VF_REG_5V
MONO VF OUT
VD
GND
HD
R7029 1k
R7030 1k
R7005
1K
R7006
11K
C7002
220/10
D7001
MA142WA
T7001
QQH0011-001
HV
L7002
100μ
C7004
220/10
R7019
12
C7011
18P
CH
L7003
68μ
R7017
4.7K
R7016
1.2K
Q7002
2SA1748(QR)
R7013
1K
R7014
4.7K
R7015
22K
C7012
1/50
Q7003
2SA1748(QR)
R7018
22K
C7013
0.1/50
C7014
0.1/50
C7015
150p/1000
VR7003
5.6M
FOCUS
R7025
2.7M
R7026
2.7M
R7020
6.8M
R7021
4.7M
R7022
4.7M
C7016
330P/500
R7024
1M
VR7002
2.2M
BRIGHT
R7023
560K
H.V
G3
G2
G1
HK
H
CN7003
CRT_SOCKET
5
4
3
2
1
A
B
C
D
E
F
G
H

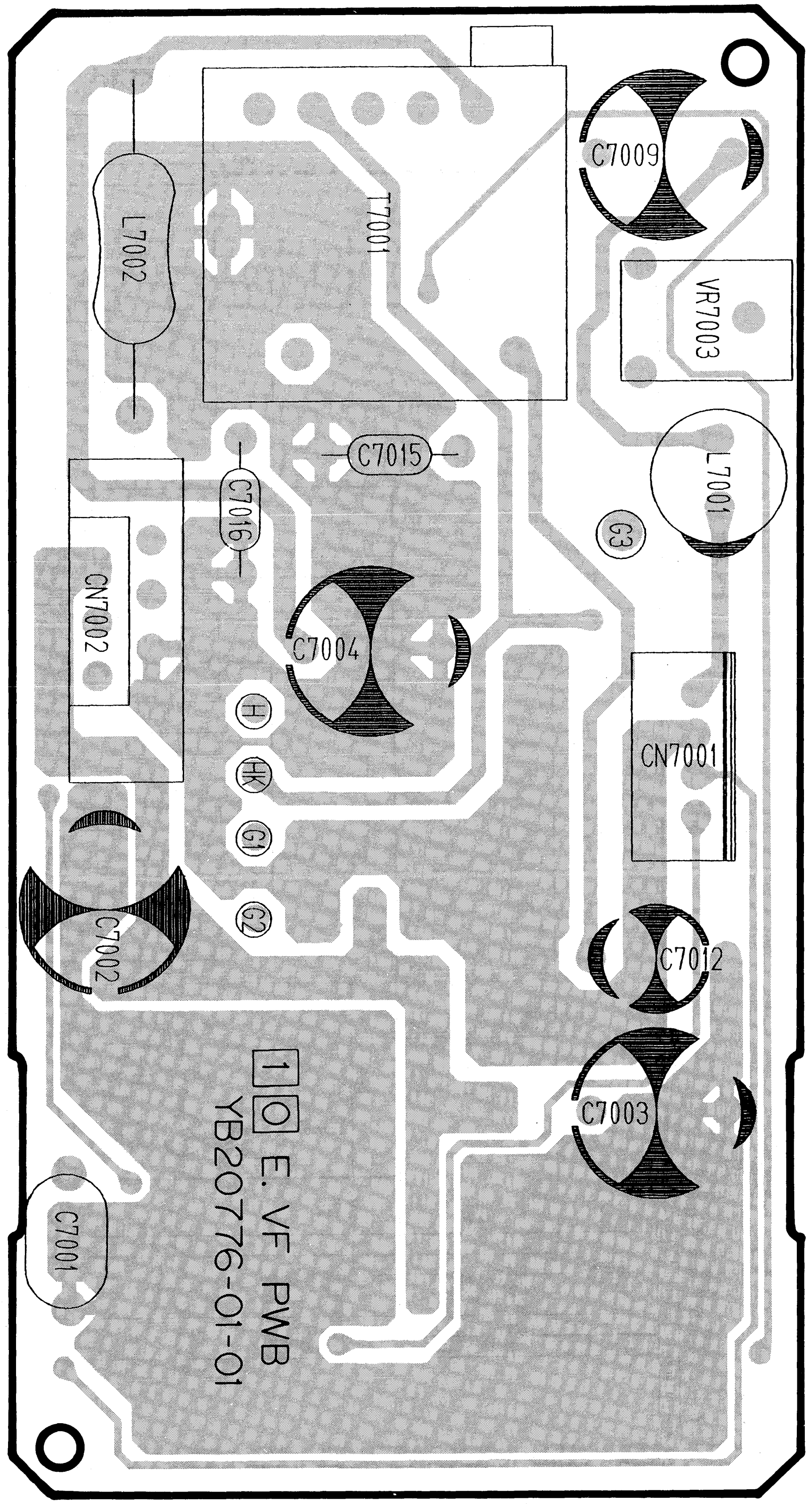
4.22 ELECTRONIC VIEWFINDER SDIRCUIT BOARD (FOR AX280EG/480EG)

<TYPE T>

FOIL SIDE (B)

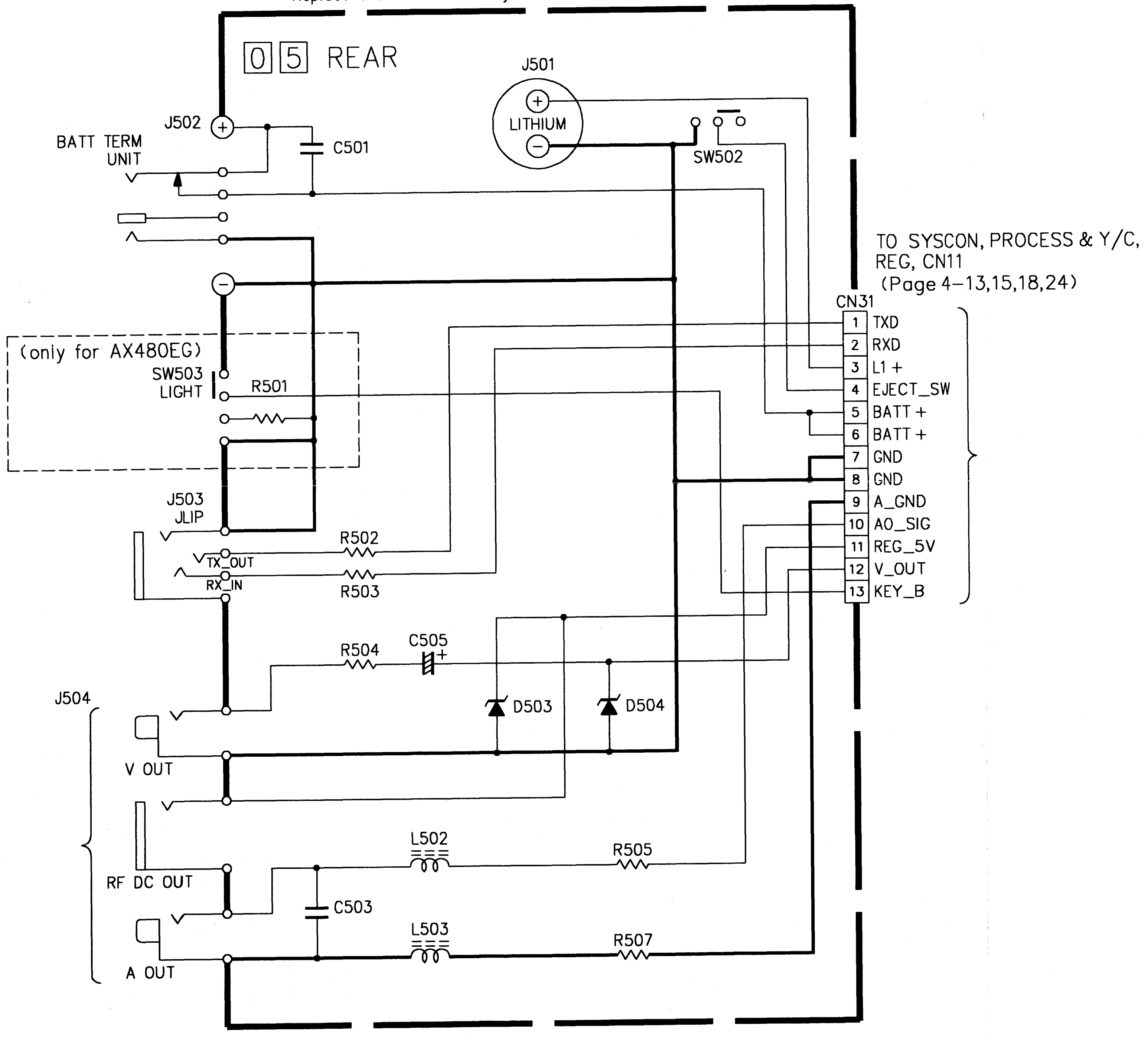

R7019
Q7001
C7010
D7001
E. VF PWB
YB20776-01-01
R7025
R7020
R7026
R7024
C7013
VR7002
R7022
R7021
R7015
C7014
R7023
C7011
R7018
Q7003
R7017
L7003
R7014
R7013
Q7002
R7016
R7030
R7007
C7005
R7006
R7005
R7009
C7007
R7029
C7006
IC7001
R7003
R7011
R7002
R7012
C7008
R7010
R7008
VR7001

COMPONENT SIDE (A)

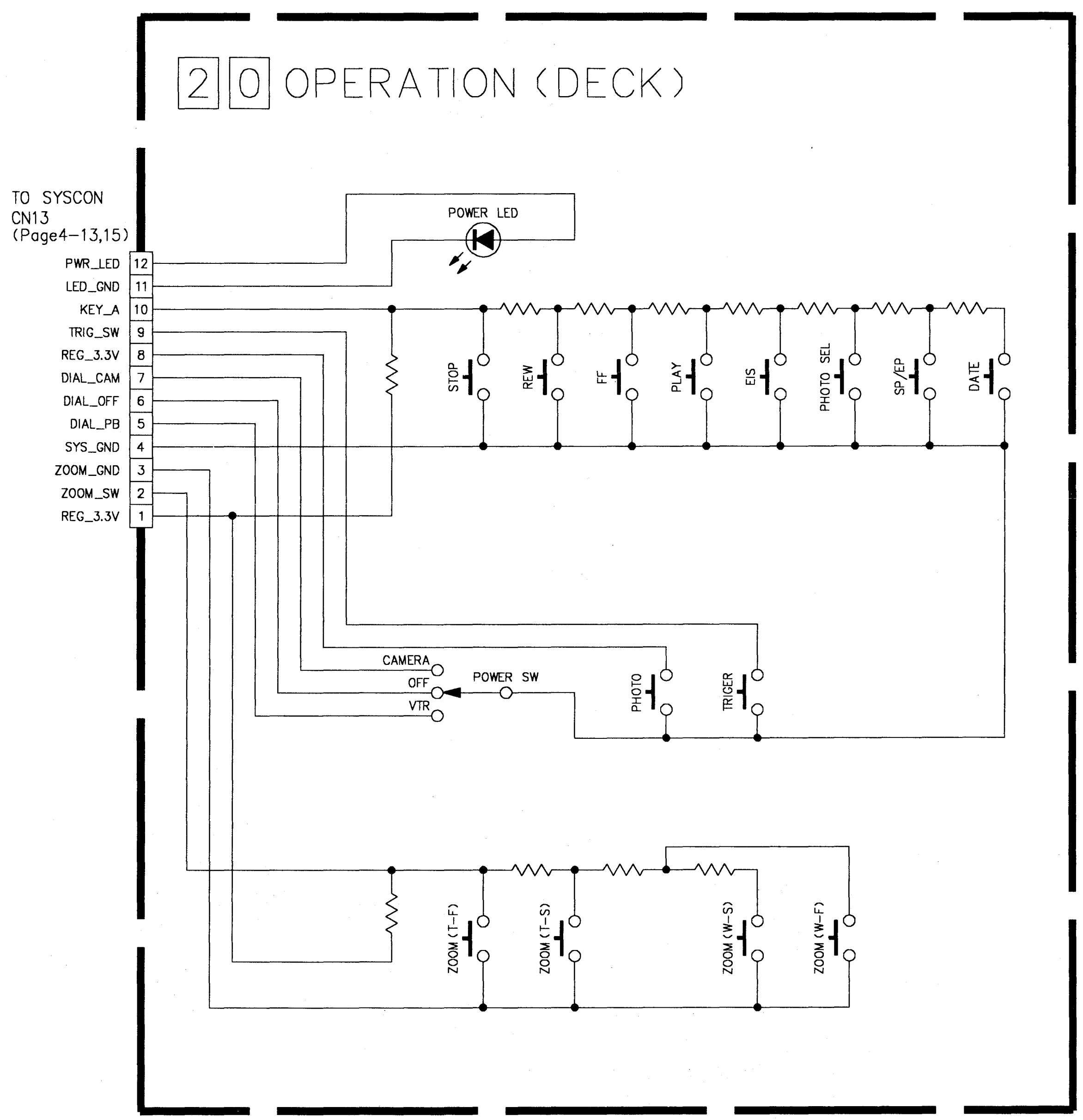

C7009
L7002
T7001
VR7003
C7015
C7016
L7001
G3
CN7002
C7004
H
HK
CN7001
G1
G2
C7002
C7012
C7003
E. VF PWB
YB20776-01-01
C7001

4.25 REAR AND OPERATION (DECK) SCHEMATIC DIAGRAMS

NOTE : This schematic diagram is only for reference
Avoid replacing individual parts.
Replace the entire unit only.

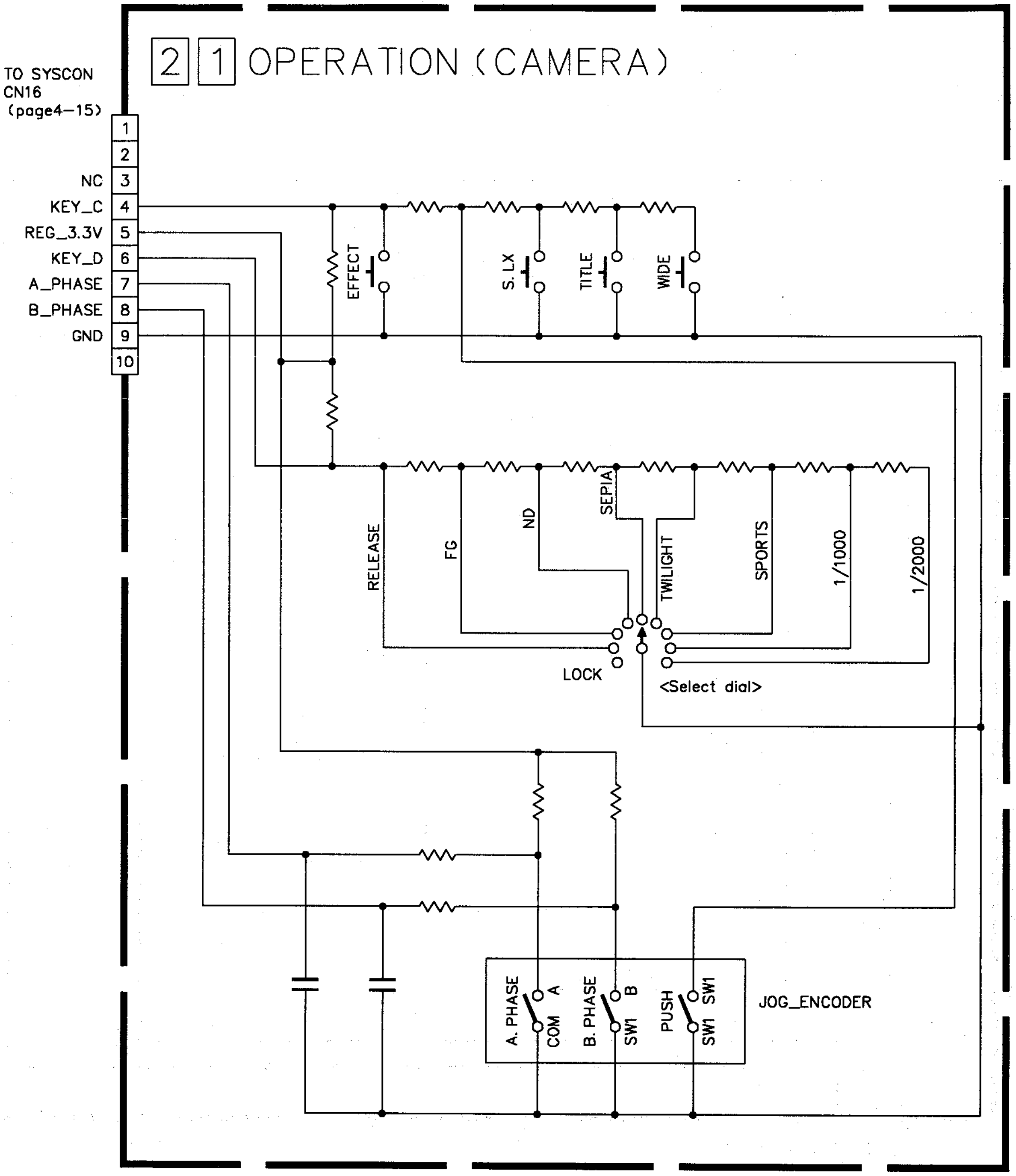

05 REAR
J501
LITHIUM
J502
BATT TERM
UNIT
C501
SW502
TO SYSCON, PROCESS & Y/C, REG, CN11
(Page 4−13,15,18,24)
CN31
1 TXD
2 RXD
3 L1 +
4 EJECT_SW
5 BATT +
6 BATT +
7 GND
8 GND
9 A_GND
10 AO_SIG
11 REG_5V
12 V_OUT
13 KEY_B
(only for AX480EG)
SW503
LIGHT
R501
J503
JLIP
R502
TX_OUT
RX_IN
R503
R504
C505
D503
D504
J504
V OUT
RF DC OUT
L502
R505
C503
L503
R507
A OUT

NOTE :This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


20 OPERATION (DECK)
TO SYSCON
CN13
(Page4−13,15)
PWR_LED 12
LED_GND 11
KEY_A 10
TRIG_SW 9
REG_3.3V 8
DIAL_CAM 7
DIAL_OFF 6
DIAL_PB 5
SYS_GND 4
ZOOM_GND 3
ZOOM_SW 2
REG_3.3V 1
POWER LED
STOP
REW
FF
PLAY
EIS
PHOTO SEL
SP/EP
DATE
CAMERA
OFF
VTR
POWER SW
PHOTO
TRIGER
ZOOM (T-F)
ZOOM (T-S)
ZOOM (W-S)
ZOOM (W-F)

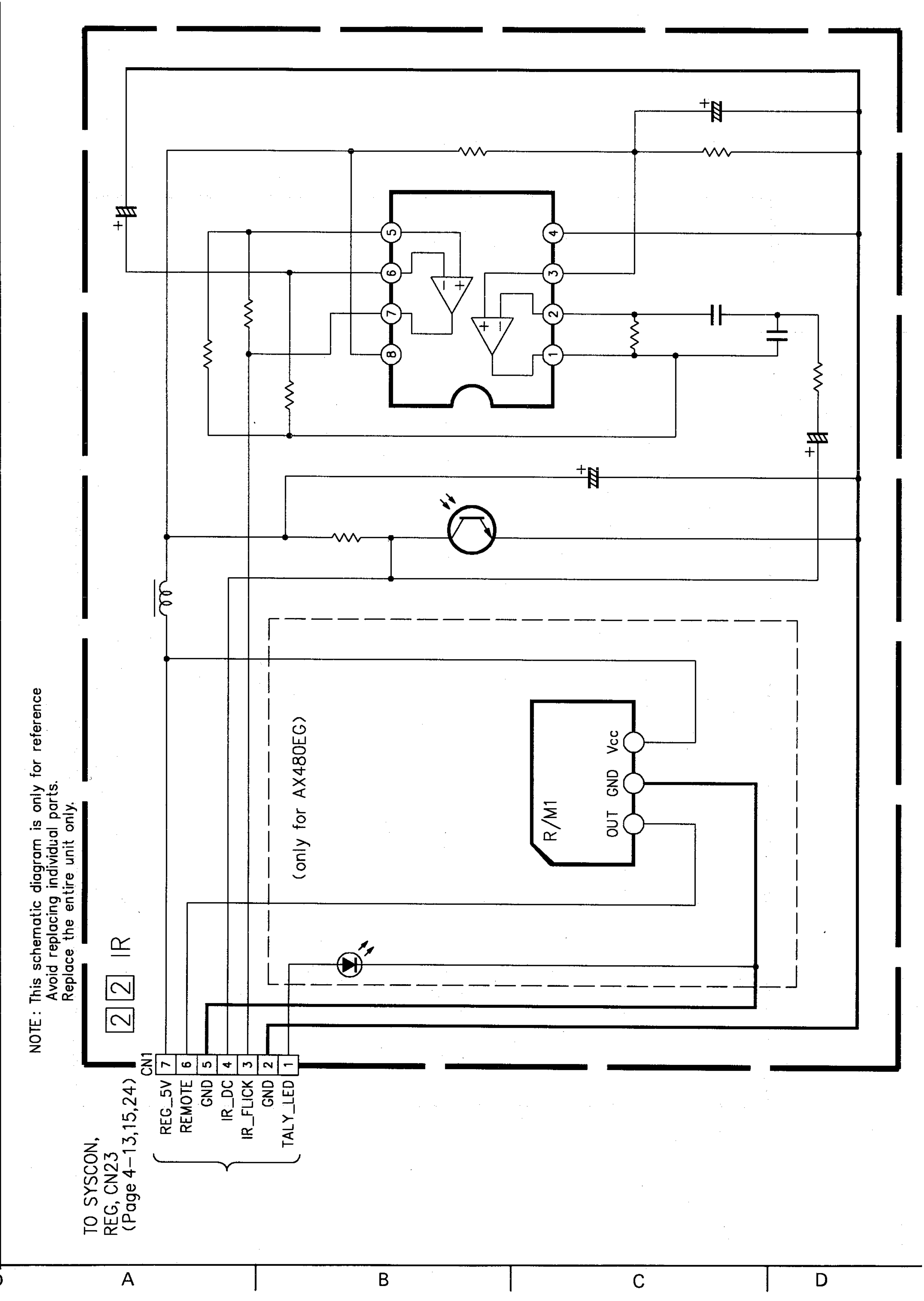
4.26 OPERATION (CAMERA) SCHEMATIC DIAGRAM

NOTE: This schematic diagram is only for reference
Avoid replacing individual parts.
Replace the entire unit only.



2 1 OPERATION (CAMERA)
TO SYSCON
CN16
(page4–15)
1
2
NC 3
KEY_C 4
REG_3.3V 5
KEY_D 6
A_PHASE 7
B_PHASE 8
GND 9
10
EFFECT
S. LX
TITLE
WIDE
RELEASE
FG
ND
SEPIA
TWILIGHT
SPORTS
1/1000
1/2000
LOCK
<Select dial>
A. PHASE
COM
A
B. PHASE
SW1
B
PUSH
SW1
SW1
JOG_ENCODER

4.27 IR SCHEMATIC DIAGRAM



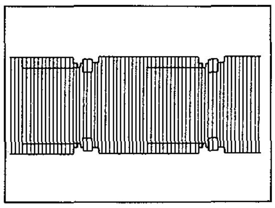
NOTE : This schematic diagram is only for reference
Avoid replacing individual parts.
Replace the entire unit only.

2 2 IR
CN1
7 REG_5V
6 REMOTE
5 GND
4 IR_DC
3 IR_FLICK
2 GND
1 TALY_LED
TO SYSCON,
REG, CN23
(Page 4-13,15,24)
(only for AX480EG)
R/M1
Vcc
GND
OUT
1
2
3
4
5
6
7
8
5
4
3
2
1
A
B
C
D

4.28 WAVEFORMS

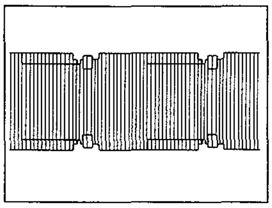
– PROCESS & Y/C –

WF1 IC3001-39



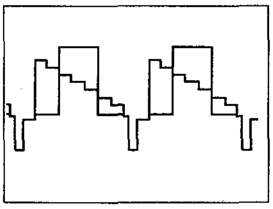
REC0.12 Vp-p
20mV/10µs/DIV

WF2 IC3001-42



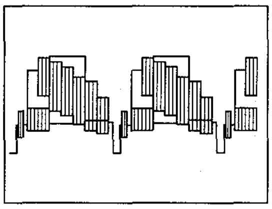
PB 0.28 Vp-p
20mV/1msec/DIV

WF3 IC3001-48



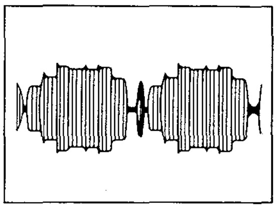
REC 0.1 Vp-p
20mV/10µsec/DIV

WF4 IC3001-50



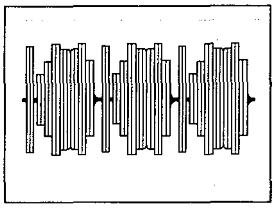
REC 0.23 Vp-p
50mV/10µsec/DIV

WF5 IC3001-57



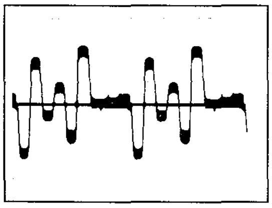
PB 0.32 Vp-p
10mV20µs/DIV

WF6 IC3001-60



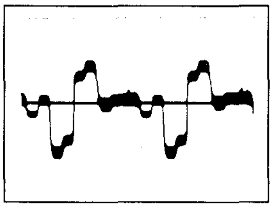
REC 0.36Vp-p
10mV/10µsec/DIV

WF7 IC3001-94



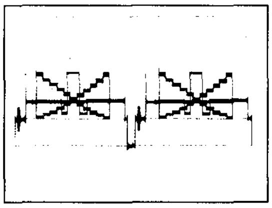
EE 0.72 Vp-p
20mV/10µsec/DIV

WF8 IC3001-96



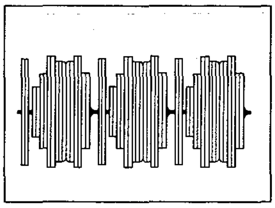
EE 0.72Vp-p
20mV/10µsec/DIV

WF9 IC3001-116



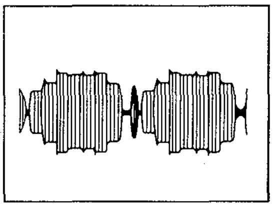
EE 1 Vp-p
20mV/10µsec/DIV

WF10 IC3003-6



REC 0.62 Vp-p
PB 0.24 BP-P
20mV/10µsec/DIV

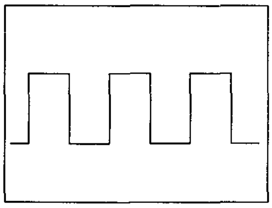
WF11 IC3003-8



REC 1.2 Vp-p
PB 0.16VP-P
10mV/20µsec/DIV

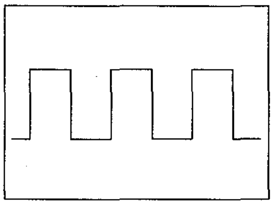
– SYSCON –

WF1 IC101-83



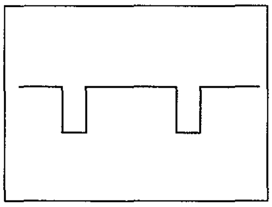
REC/PB 30 Vp-p
0.1V/1msec/DIV

WF2 IC101-85



REC/PB 3 Vp-p
0.1V/0.1msec/DIV

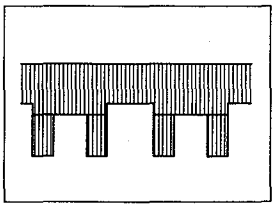
WF3 IC101-87



REC/PB 3 Vp-p
0.1V/5ms/DIV

– CCD –

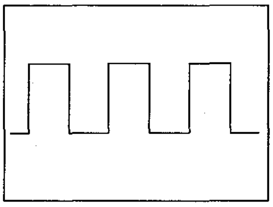
WF1 CN5201-4



EE 1.2 Vp-p
20mV/2µsec/DIV

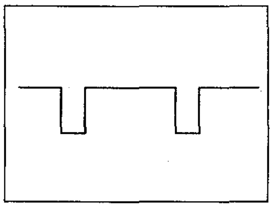
– MECHA MDA –

WF1 IC1601-29



REC/PB 3.1 Vp-p
0.1V/0.1msec/DIV

WF2 IC1601-62



REC/PB 3 Vp-p
0.1V/5msec/DIV

4.29 VOLTAGE CHARTS

<SYSCON>

MODE PIN NO.	REC	PLAY
IC101		
1	3.1	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0.5	0.5
11	0	0
12	0	3.1
13	3.1	0
14	0	2.4
15	0	3.1
16	0	0
17	0	3
18	0	0
19	0	0
20	1.3	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	3.1
28	0	0.4
29	0	0.4
30	0	0.4
31	0	0.4
32	0	0.5
33	0	0.4
34	1.6	0.4
35	0	0.7
36	3.1	3.1
37	0	0
38	0	0
39	3.1	3.1
40	3.1	3.1
41	3.1	3.1
42	0	0
43	2.1	2.3
44	0	0
45	0	3.1
46	0	0
47	0	0
48	1.9	0.9
49	0	0
50	0	0
51	1.5	1.7
52	0	1.5
53	2.2	2.2
54	1.8	1.8
55	0	0
56	3.1	3.1
57	1.5	1.5
58	0	0
59	0	0
60	0	3.1
61	1.5	0.6
62	1.5	0.4
63	0	0
64	3.1	3.1
65	3.1	3.1
66	0	0
67	0	0
68	2.8	2.8
69	0	0
70	0.7	0
71	1.5	1.5
72	3.1	3.1
73	0	0
74	0	3.1
75	3.1	3.1
76	0	0
77	3	3
78	-	-
79	0.5	0
80	2.7	0
81	2.7	0
82	0	0
83	1.6	0
84	0	0
85	0	1.6
86	1.5	0
87	1.8	2.9
88	3.1	0
89	0.7	0.7
90	0	0
91	0	0
92	3.1	0
93	1.6	0
94	1.6	0.5
95	1.7	0
96	1.9	0
97	1.1	2
98	0	0
99	3.1	3.1
100	3.1	3.1
101	3.1	3.1
102	3.1	3.1
103	2.8	2.8
104	2.8	2.8
105	2.8	2.8
106	0.8	0.4
107	2.9	0
108	1.1	0.4
109	0	3.1
110	0	0
111	0	0
112	0	0
113	0	0
114	0	0
115	0	0
116	0	0
117	0	0
118	0	0
119	0	0
120	0	0
121	0	0
122	0	0
123	3.1	3.1
124	2.9	0
125	0	0
126	0.8	0.6
127	0.8	0.6
128	0	3.1
129	0	0
130	0	0
131	3.1	3.1
132	1.4	1.2
133	3.1	3.1
134	2.7	2.7
135	3.1	0
136	-1.9	-1.9
137	3.1	3.1
138	0	0
139	0	0
140	0	0
141	0	0
142	0	0
143	3.1	3.1
144	0	0
IC102		
1	3.2	3.2
2	0	0
3	6.8	6.8
IC103		
1	0	0
2	0	0
3	0	0
4	3.1	3.1
5	3.1	3.1
IC104		
1	0	0
2	3.1	3.1
3	0	0
4	0	0
5	0	0
6	0.5	0
7	0	0
8	3	3
IC105		
1	0	0
2	0	0
3	3	0
4	0	0
5	0	0
6	3.1	3.1
7	3.1	3.1
8	3.1	3.1
IC106		
1	1.7	1
2	2.3	0.5
3	1.7	1.1
4	2.9	2.9
5	1.1	0.5
6	0	0
7	0	0
8	0	0
9	0	0.5
10	1.3	1.3
11	2	2.1
12	2	0
13	1.9	2
14	2	2.1
15	0	0
16	3.1	3.2
IC108		
1	0	0
2	0.6	0.7
3	1.3	0
4	0	0
5	3	0
6	0	0
7	0	0
8	3.1	3.1
9	3.1	3.1
10	0	0
11	0	0
12	3.1	3.1
13	3.1	3.1
14	0	0
15	0	0
16	3	3
17	3.1	3.1
18	3.1	3.1
19	3.1	3.1
20	3.1	3.2
21	2.9	2.9
22	0	0
23	3.1	3.1
24	0	0
25	0	0
26	0	0
27	0	0
28	4.8	0
29	4.8	0
30	0	0
31	0	0
32	0	0
33	2	0
34	0	0
35	1	0
36	0.4	0
37	4.8	4.8
38	0	0
39	4	0
40	0	3.5
41	0	0
42	3.1	0
43	4.8	4.8
44	3.1	0
45	0.7	0
46	1.9	0
47	0.4	0
48	4.5	1.2
IC109		
1	0	0
2	2.4	2.4
3	1.5	1.2
4	3	3.1
5	0	3.1
6	0	0
7	1.2	1.2
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	2.8	0
20	0	0
IC110		
1	3.1	3.1
2	3.1	3.1
3	3.1	3.1
4	0	0
5	3.1	3.1
6	0	0
7	0	0
8	3.1	3.1
Q101		
E	5.9	6.8
C	6.6	6.7
B	6.6	6
Q102		
E	3.1	0
C	0	0
B	0	3.1
Q103		
E	3.1	3.1
C	3	-0.4
B	0	3.2
Q104		
E	2.6	0
C	0	3.2
B	0	0
Q107		
E	0	0
C	0.8	0.7
B	0	0
Q108		
E	0.6	0
C	4.8	4.8
B	0	4.8
Q109		
E	0	0
C	6	6.2
B	0	0
Q110		
E	6.6	6.7
C	0	0
B	6.7	6.8
Q111		
E	0	0
C	0	0
B	3.1	3.1
Q112		
E	4.8	4.8
C	-0.4	4.8
B	0	0

<PROCESS & Y/C>

MODE PIN NO.	REC	PLAY
IC3001		
1	1.7	0
2	2.3	0.4
3	1.9	3.8
4	3	3.5
5	1.8	1.9
6	2.1	3.7
70	0	
8	1.9	2.4
9	2.7	3
10	1.7	1.7
11	1.7	1.7
12	4.6	4.7
13	2.5	2.3
14	1.9	1.8
15	1.9	0
16	2.5	1.5
17	3.2	1.1
18	1	1
19	1	1.8
20	4.7	4.7
21	1.8	1.9
22	4	3.4
23	2.1	2.1
24	0	0
25	0.4	0.4
26	0.4	2.2
27	2.1	2.1
28	1.9	2.1
29	0.4	2
30	3.8	2.6
31	0.8	2.2
32	0	2.2
33	2.1	0.9
34	2	2.6
35	2	2.6
36	0	1.1
37	2.3	3.1
38	1.9	0
39	3.3	3.8
40	4.7	4.7
41	1.9	1.8
42	0	2.6
43	0	0
44	2.5	2.3
45	0	0
46	2	2
47	2.4	2.4
48	2.4	2.3
49	0	0
51	4.8	4.8
52	0	0
53	0	0
54	1.4	1.4
55	0	0
56	1.6	1.9
57	1.7	1.7
58	4.7	4.6
59	2.2	2.7
60	2.5	2.6
61	1.1	2.1
62	3	3
63	0.8	0.8
64	2.9	2.6
65	1.7	1.6
66	0	3
67	0.8	0.8
68	0	0
69	1.1	1.1
70	1.9	0
71	1.9	1.9
72	4.7	0
73	1.9	1.9
74	2.6	2.6
75	2.3	1.7
76	0	0
77	2.5	2.6
78	3.3	3.3
79	2.3	2.4

MODE PIN NO.	REC	PLAY
80	2.3	2.4
81	1.7	1.7
82	1.7	1.7
83	0	0
84	0	0
85	1.5	1.2
86	2.8	2.8
87	3	3
88	2.2	2.1
89	1.7	1.7
90	2	2
91	2.4	1
92	0.5	0
93	4.6	4.7
94	2.1	3.3
95	1.6	1.7
96	2	3.3
97	2.9	3.8
98	2.9	2.7
99	1.7	0.6
100	1.7	0.5
101	2.3	1.5
102	2.3	1.5
103	1.7	0.7
104	1.7	0
105	1.8	0.5
106	1.8	1.8
107	1.5	1.5
108	2.3	2.3
109	2.9	1.9
110	2.8	4.3
111	2.7	3.9
112	2.9	1.4
113	-0.6	1
114	-0.4	0
115	0	0
116	1.8	0
117	1.7	1.7
118	3.4	3.7
119	1.6	2.8
120	1.6	2
121	2.2	2.2
122	2.1	2.1
123	1.8	0.7
124	1.8	0.5
125	3.3	0
126	1.9	2.2
127	2.9	0
128	1.8	1
IC3003		
1	2	2.1
2	0	0
3	4.7	4.8
4	0	2.9
5	0	0
6	2.8	2.8
7	6.7	6.7
8	2.3	1.8
9	4.7	4.8
10	0	0
11	2.5	0
12	6.7	0
13	2.9	0
14	0	0
15	2.9	2.9
16	4.7	4.8
17	0	0
18	0	-2.8
19	0	3
20	2	2
Q3008		
E	2.3	2.4
C	4.8	4.8
B	1.7	1.8
Q3009		
E	2.3	2.4
C	4.8	4.8
B	1.7	1.8

MODE PIN NO.	REC	PLAY
Q3011		
E	0	2.2
C	4.7	4.6
B	0	1.6
Q3012		
E	2.3	-
C	4.7	4.7
B	1.7	1.7
Q3082		
E	2.3	1.8
C	4.8	4.8
B	1.6	1.2
Q3090		
E	2.1	2.2
C	3.1	3.1
B	1.5	1.5
Q3091		
E	1.5	1.5
C	0	0
B	2.1	2.1
Q3232		
E	3.3	3.3
C	4.7	4.7
B	2.7	2.7
Q4010		
E	0	0
C	4.7	1.2
B	1.3	0
Q4011		
E	1.3	0
C	0	0
B	1.9	0.5
Q4014		
E	0	0
C	3.1	3
B	2.5	2.4
Q4017		
E	1.6	2
C	4.7	1.2
B	1.1	1.2

<AUTO>

MODE PIN NO.	REC	PLAY
IC4201		
1	1.8	1
2	1.7	1.7
3	1.7	1.7
4	4.4	1.2
5	1.7	1.7
6	1.7	1.6
7	1.6	0.5
8	2.3	0
9	1.7	1.6
10	1.7	0
11	0	0
12	1.6	0
13	1.6	0
14	1.2	0.5
IC4203		
1	2.6	0
2	3.3	0.6
3	2.7	0
4	2.3	0.5
5	2.1	0.4
6	1.7	0
7	2.1	0.6
8	4.2	1.2
9	2.2	0.6
10	2.4	1
11	0	0
12	2.4	1.1
13	0	0
14	1.1	0.6
15	3.7	1.2
16	4.5	1.2
17	0	1.7
18	0.5	0
19	2.9	0
20	2.9	0.6
21	1.1	0
22	0	0
23	0	0
24	2.7	1.1
25	1.1	0.6
26	0.7	0
27	2.6	0
28	0.6	0.5
29	2.2	0
30	0	0
31	0	0
32	2	0
33	2.3	0
34	4.7	1.3
35	3.1	0.8
36	2.3	0
37	3.1	0.7
38	3.2	1.2
39	2.6	0
40	3.2	1.2
41	2.6	0
42	0	1.2
43	2.6	0
44	3	0.7
IC4205		
1	0.6	0
2	1.9	0
3	1.9	1
4	0	0
5	1.9	1
6	1.9	0
7	1.9	0
8	4.6	1.2
Q4201		
1	0	1.6
2	1.7	1.7
3	0	1.6
4	1.6	1.3
5	1.7	1.3
Q4202		
E	0	0
C	3.1	3.1
B	2	0

MODE PIN NO.	REC	PLAY
Q4203		
E	3	3.2
C	2.9	0
B	0	3.2
Q4204		
E	0	0
C	3.6	1.2
B	0	0
Q4205		
1	1.8	1.1
2	1.2	1.2
3	3.5	1.5
4	4.7	1.3
5	0	0
6	0	0
Q4206		
1	2.4	0.5
2	1.8	0
3	2.4	0.5
4	4.7	1.2
5	1.9	0
6	0	0
Q4207		
1	1.7	0.7
2	0	0
3	1.4	1
4	4.7	1.2
5	0.8	0
6	0	0

<F/Z MDA>

MODE PIN NO.	REC	PLAY
IC4501		
1	0	0
2	0.4	0.4
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	3.1	3.1
9	6.7	6.7
10	0	0
11	0	0
12	0	0
13	6.7	6.7
14	0	0.7
15	0	0
16	0	0.7
17	0	0
18	0	0
19	0	0
20	0	0
21	2.6	0
22	0	0
23	6.7	6.7
24	0.4	0.6
25	0	0
26	0.4	0.6
27	6.7	6.8
28	0.4	0.6
29	0	0
30	0.4	0.6
31	0	0
32	0	0
33	0	0
34	1.4	1.2
35	2.8	2.8
36	0	1.7
37	1.2	1.2
38	3.1	0
Q4501		
E	0	0
C	2.7	2.7
B	0	0
Q4502		
E	0	0
C	2.7	0
B	0	0
Q4503		
E	0	0
C	2.7	2.7
B	0	0
Q4504		
E	0	0
C	2.8	0
B	0	0

<REGULATOR>

MODE PIN NO.	REC	PLAY
IC6001		
1	0	0.9
2	2.6	2.6
3	1	1
4	0.9	0.9
5	0	1.2
6	0	0
7	1.2	0
8	0	0
9	0	0
10	0	0
11	0	0
12	2.6	0
13	0	0.9
14	0.9	0
15	1.1	1.1
16	0.9	0.9
17	1.2	1.2
18	0.9	0.8
19	0	0
20	0	0
21	0.9	0
22	0	0
23	0	6.8
24	1.1	1.1
25	0	1.2
26	0	1.2
27	3.2	3.1
28	3.1	3.1
29	6.7	6.8
30	2.6	2.6
31	0	0
32	0	0
33	3.1	3.1
34	0	0
35	3.1	3.1
36	0	0
37	2.9	0
38	4.5	5.6
39	3.1	0
40	0	0
41	1.4	1.5
42	0	0
43	2.6	3.2
44	4.7	4.8
45	1.9	1.9
46	6.7	6.7
47	0	0
48	0	0
IC6002		
1	–	–
2	–	–
3	–	–
4	–	–
5	–	–
Q6001		
E	6	6.1
C	3.3	3.3
B	0	6.8
Q6002		
E	4	4.8
C	4.7	1.2
B	4.8	4.8
Q6003		
E	3.1	0
C	0	4.8
B	0	0
Q6005		
1	0	0
2	6.3	6.6
3	6.7	6.8
4	1.7	1.6
Q6011		
G	3.1	3
D	1.5	3
S	0	0
Q6012		
G	4.4	5.5
D	1.2	1
S	6.6	0
Q6013		
E	15.7	15.8
C	15.8	15.8
B	15	15.1
Q6019		
E	14.3	15
C	0	0
B	15	15
Q6020		
E	-7.4	-8
C	-8	-1.6
B	-8	-8
Q6021		
E	0.4	4.8
C	4.8	-8
B	4.8	4.8
Q6022		
E	0.5	0.4
C	0	14.9
B	0	0
Q6023		
E	0	0
C	0	0
B	0	0
Q6201		
E	6.7	6.8
C	0	0
Q6202		
E	0	0
C	6.7	0
B	0	0
Q6203		
E	0	0
C	0	0
B	0	0

<CTL AMP>

MODE PIN NO.	REC	PLAY
IC1201		
1	1.8	0
2	3.1	0
3	1.8	0
4	0	0
5	0.6	1.7
6	0.4	1.7
7	0	0
8	1.6	1.7
9	1.6	1.7
10	1.9	1.7
11	0	0
12	0.8	0.8
13	0.8	0.8
14	3.1	3.1

<MECHA SENSOR>

MODE PIN NO.	REC	PLAY
Q1001		
1	-	-
2	2.2	2.2
3	4	0
4	0	0
Q1002		
1	0	0
2	-	-
3	1.9	1.9
4	0	0
Q1003		
E	0	0
C	3.1	3.1
B	-	-
Q1004		
E	0	0
C	3	3.1
B	-	-

<MECHA MDA>

MODE PIN NO.	REC	PLAY
IC1601		
1	0	0
2	1.9	1.8
3	4.9	4.8
4	1.8	1.8
5	0	0
6	3.8	3.9
7	1.8	1.8
8	0.	40.4
9	0	0
10	0	0
11	0	0
12	6.7	6.7
13	0.4	0
14	0.8	0.8
15	0	0
16	0	0
17	0.8	0.8
18	1.7	1.6
19	0.8	0.8
20	1.2	1.2
21	1.2	1.2
22	1.2	1.2
23	0	0
24	2.3	2.3
25	2.3	2.3
26	2.3	2.3
27	2.3	2.3
28	2.3	2.3
29	1.5	1.5
30	2.4	2.4
31	2.4	-
32	2.4	-
33	4.8	4.8
34	0	-
35	0.5	0.5
36	0.5	0.5
37	1.1	1.1
38	1.5	0
39	4.8	4.8
40	0	0
41	0	0
42	2.8	2.8
43	0	0
44	1.4	0
45	3	3.1
46	0	0
47	4.8	4.7
48	4.8	4.8
49	0	0
50	-	-
51	0	0
52	0	0
53	1.6	1.6
54	0	0
55	0	0.5
56	0	0
57	2	2
58	0	0
59	0	0.6
60	0	0
61	2.3	0
62	2.8	2.9
63	2	2
64	2.3	2.3
65	2.3	2.3
66	-	2.4
67	0	2.3
68	0	1.5
69	0	0
70	1.8	1.8
71	1.8	1.8
72	1.8	1.8
73	1.9	1.8
74	2.3	2.3
75	2.3	2.3
76	2.3	2.3
77	0.7	0.7
78	4.5	4.5
79	4.6	0
80	4.6	4.5
QA1601		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	1.8	1.8
9	4.6	4.5
10	1.8	1.8
11	4.6	4.5
12	1.8	1.8
13	4.6	0
14	4.9	4.9
QA1602		
1	0.8	0
2	1.2	0
3	0.8	0
4	1.2	0
5	0.8	0
6	1.2	0
7	1.7	0
8	0	0
9	0	1.2
10	0	0.8
11	0	1.2
12	0	0.8
13	0	1.2
14	0	1.6

<AUDIO>

MODE PIN NO.	REC	PLAY
IC2001		
1	1.6	1.6
2	2.2	2.2
3	2.2	2.2
4	2.2	2.2
5	2.2	2.2
6	2.2	2.2
7	0	0
8	1.5	1.5
9	0	0
10	2.2	2.2
11	0.7	0
12	0	3.4
13	2.2	2.2
14	4.6	0
15	2.2	2.2
16	0	0
17	0	0
18	0	0
19	1.6	1.6
20	0	0
21	1.6	1.6
22	4.5	4.5
23	1.6	1.6
24	4.5	4.5
IC2071		
1	2.2	2.2
2	2.2	2.2
3	2.2	2.2
4	0	0
5	2.2	2.2
6	2.2	2.2
7	2.2	2.2
8	4.5	4.5
Q2001		
E	0	4.8
C	0	0
B	4.8	4.8
Q2003		
E	0	0
C	0	-0.4
B	3.5	0
Q2004		
E	0	0
C	4.5	0
B	0	0
Q2005		
1	-14.2	0
2	-20.4	0.6
3	0	0
4	-14.2	0
5	-20	0
6	0	0
Q2006		
E	4.5	4.5
C	-20	4.5
B	4.5	0
Q2007		
E	0	0
C	4.5	0
B	0	3.4
Q2008		
E	0	0
C	0	0
B	2.9	2.8
Q2009		
E	0	0
C	2.9	2.9
B	0	0
Q2010		
E	0	2.8
C	0	0
B	2.9	0
Q2019		
E	0	0
C	0	0
B	0	0

<PRE/REC>

MODE PIN NO.	REC	PLAY
IC3501		
1	0	0
2	0	0
3	2.3	2.3
4	0	3.1
5	3.1	2.1
6	1.4	0
7	1.5	2.4
8	2.2	2.3
9	2.2	0
10	3	3
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0.6	0.6
17	2.3	2.2
18	0	0
19	0	0
20	3.8	0
21	3.2	0
22	3.7	0
23	0	0.5
24	0	0.6
25	0	0
26	0	0
27	3.7	0
28	3.3	0.4
29	3.8	0
30	4.5	0
31	4.5	0
32	3.8	0
33	3.2	0.4
34	3.8	0
35	0	0.4
36	0	0
37	0	0.7
38	0	0
39	3.8	0
40	3.3	0.4
41	3.8	0
42	2.2	2.3
43	0	0
44	4.5	4.6
45	4.5	4.6
46	2.2	4.2
47	3.6	2.6
48	3.8	2.2
Q3501		
E	0.6	0.4
C	0	0
B	0	0
Q3502		
E	0.6	0.4
C	0	0
B	0	0
Q3503		
E	0.6	0
C	0	0
B	0	0.4
Q3504		
E	0.6	0.4
C	0	0
B	0	0
Q3506		
E	0	0
C	0	0
B	0	2.9
Q3507		
E	0	0
C	0	2.9
B	4	0
Q3508		
E	0	0
C	2.3	0
B	0	0
Q3509		
E	3.8	4.2
C	0	4.6
B	3.2	3.6
Q3901		
E	0	0.4
C	0	0
B	0.5	0
Q3902		
E	0	0
C	0	0
B	0.5	0.4
Q3903		
E	0	0
C	0.5	0.4
B	0	0
Q3904		
E	3.1	3.1
C	0	0
B 3.1	3.1	
Q3905		
E	0	2.9
C	0	0
B	0	0
Q3906		
E	0	0
C	0	0
B	0	0

<CCD>

MODE PIN NO.	EE
IC5201	
1	-7.9
2	-7.9
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	5
11	0
12	0
13	5
14	4.7
15	0
16	14.9
17	-7.4
18	-7.4
19	0
20	14.9
IC5202	
1	5
2	0
3	1.1
4	0.7
5	1.9
6	0
7	0
8	5
9	0
10	0
11	0
12	0
13	4.7
14	5
15	5
16	5
17	0
18	0
19	1
20	0
21	0
22	2.5
23	0
24	5
25	0
26	0.5
27	0
28	3.7
29	1.2
30	0
31	0.6
32	0
33	1.8
34	0
35	0
36	0
37	1.2
38	4.6
39	4.8
40	0
41	5
42	0
43	1.4
44	0
45	5
46	0
47	0
48	1.6
49	2
50	0
51	4.8
52	0
53	0
54	1.5
55	1.5
56	0
57	5
58	0.4
59	2.5
60	0
61	0.4
62	0.4
63	0.7
64	0.7
IC5203	
1	1.8
2	0.4
3	2.6
4	5
5	0.7
6	0.7
7	0
8	1.9
Q5203	
E	11.5
C	14.9
B	10.8
Q5204	
E	1.9
C	5
B	1.3
Q5205	
E	–
C	5
B	1.8

<C. VF>
GR-AX380

MODE PIN NO.	EE
IC7001	
1	0.6
2	0.6
3	0.5
4	0.4
5	0.4
6	0.4
7	0
8	0
9	4.7
10	1.3
11	0
12	0.5
13	0.5
14	0
15	0
16	2.4
IC7002	
1	11.7
2	4.8
3	0
4	0
5	4.8
6	4.7
7	13.1
8	14.9
IC7003	
1	3
2	0
3	1
4	0
5	1.6
6	2.7
7	1.1
8	0
9	0
10	0
11	0
12	0
13	0
14	1.4
15	-0.5
16	0
17	3
18	0
19	0
20	1.3
21	1.3
22	2.7
23	1.5
24	1.5
25	0
26	0
27	1.5
28	1.5
29	3
30	3
31	2.8
32	0
33	2.8
34	3
35	0
36	0
37	0
38	0
39	3
40	0
41	5.8
42	2.2
43	5.8
44	2.2
45	5.8
46	2.2
47	11.7
48	5.9
49	4.8
50	2.6
51	0
52	3.7
53	2.4
54	2.5
55	0
56	4.5
57	3.5
58	4.8
59	1
60	4.7
61	0
62	0
63	1.6
64	0
IC7004	
1	1.2
2	0
3	0
4	3
5	4.8
IC7005	
1	3.1
2	3
3	3
4	0
5	2.2
6	2.8
7	3
8	3
Q7001	
E	0
C	0
B	3.1
Q7002	
E	3.6
C	4.8
B	0
Q7003	
E	4.8
C	4.7
B	0

<BL>

MODE PIN NO.	EE
Q7301	
G	0
D	5.1
S	0

E. VF/TYPE T
GR-AX280/AX480

MODE PIN NO.	EE
IC7001	
1	2.1
2	4.7
3	2.0
4	0
5	0
6	0
7	2.0
8	4.5
9	4.2
10	0
11	1.9
12	4.4
13	2.7
14	1.8
15	1.8
16	1.6
Q7001	
1	0.5
2	14.7
3	0
Q7002	
E	2.7
C	-25.2
B	2.2
Q7003	
E	-24.6
C	-34.8
B	-25.2

E. VF/TYPE M
GR-AX280/AX480

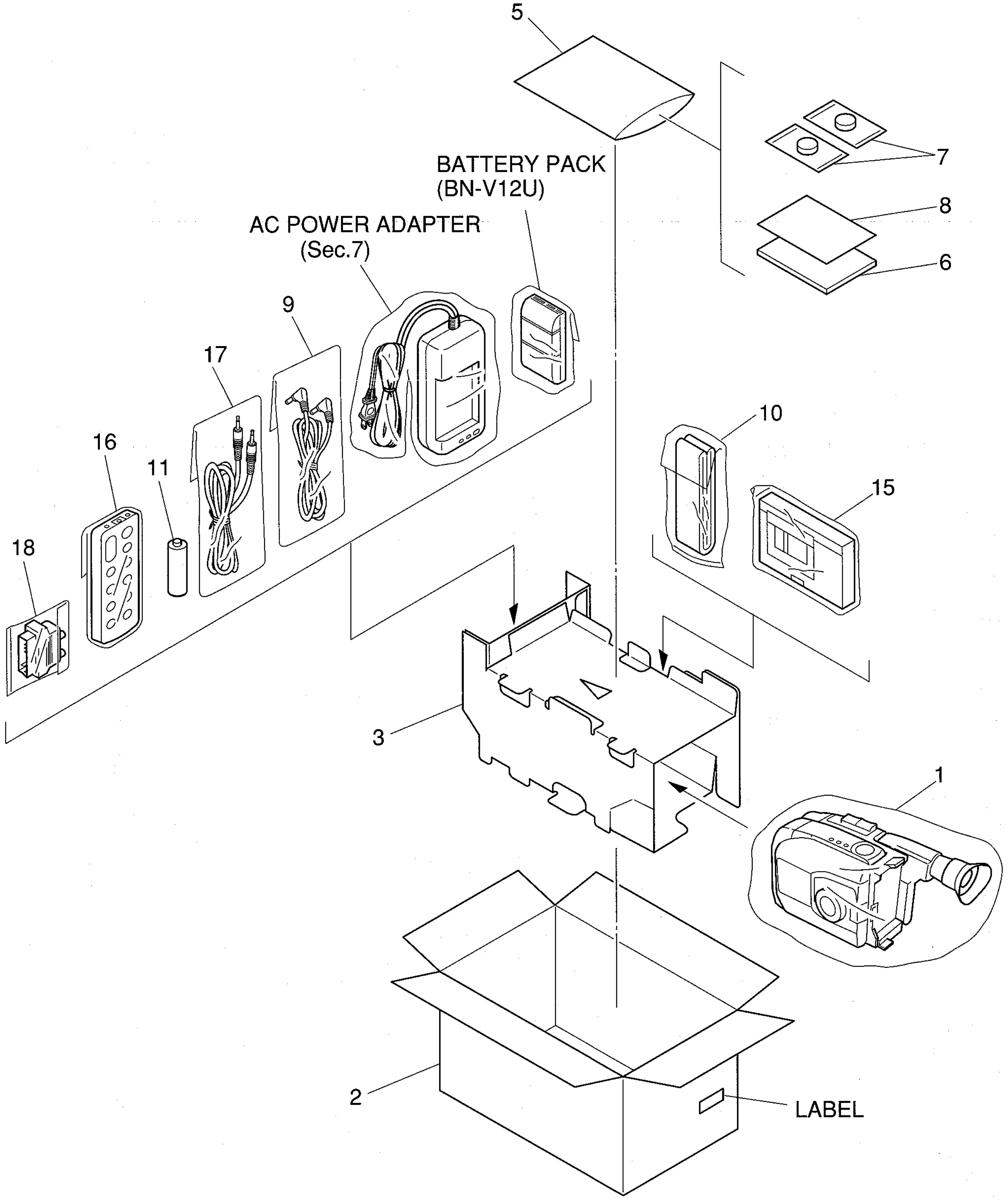
MODE PIN NO.	EE
IC1	
1	0
2	4.9
3	2.4
4	0
5	1.9
6	0
7	0
8	4.5
9	4.4
10	0
11	1.9
12	4.5
13	2.8
14	1.8
15	1.8
16	3.1
Q1	
E	2.2
C	-15.2
B	1.7
Q2	
E	0
C	4.5
B	0
Q3	
E	0
C	0
B	0.3

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING ASSEMBLY <M1>



# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION

✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻

PACKING ASSEMBLY <M1>

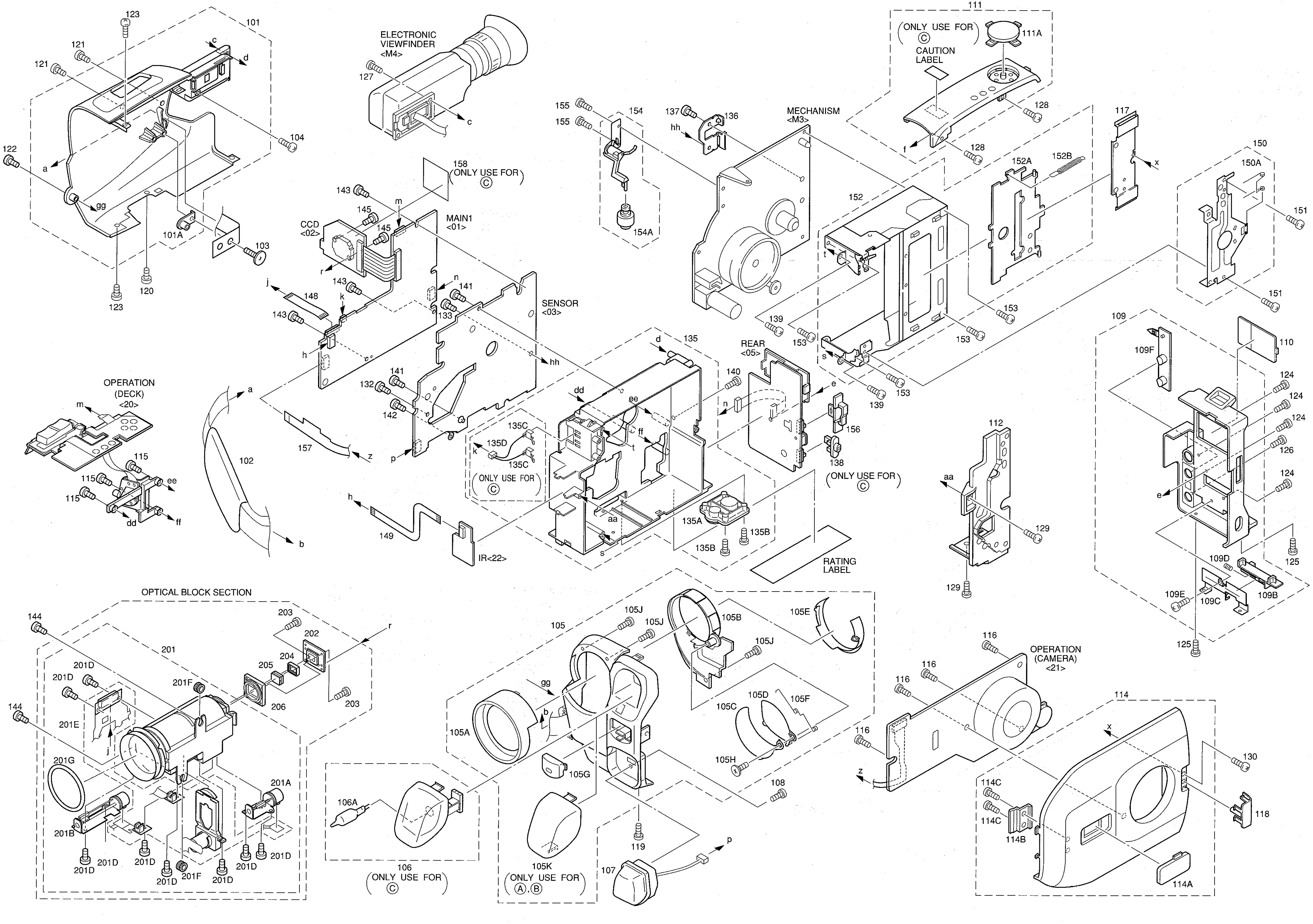
# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	LY30023-002A	POLY BAG
	2	LY30337-006A	PACKING CASE,A
		LY30337-008A	PACKING CASE,B
		LY30337-009A	PACKING CASE,C
	3	LY30338-001A	CUSHION
	5	QPA02003006	POLY BAG
⚠	6	LYT0032-001A	IB(EN.GE)
⚠		LYT0032-002A	IB(FR.DU)
⚠		LYT0032-003A	IB(SP.IT)
⚠		LYT0032-004A	IB(DA.FI)
⚠		LYT0032-005A	IB(SW.NO)
⚠	7	PECA0903	LI BATTERY,A,B
⚠		PECA0903	LI BATTERY,X2 C
	8	BT-54008-1	GUARANTEE CARD
	9	PEAC0449	DC PLUG CORD
	10	LY20186-001A	SHOULDER STRAP
	11	–	BATTERY, CASS. ADAPTER
	15	YQ31963A-3	CASS.ADAPTER ASSY
		or YQ31963B-3	CASS.ADAPTER ASSY
	16	YQ20932A	REMOTE CONTROLLER,C
	17	PEAC0362-150	CABLE ASSY(AUDIO/VIDEO)
	18	PEMC1174	CONNECTOR,C

- INSTRUCTIONS

EN .... ENGLISH
FR .... FRENCH
GE .... GERMAN
DU .... DUTCH
SP .... SPANISH
IT .... ITALIAN
SW ...... SWEDISH
DA .... DANISH
FI .... FINNISH
NO ...... NORWEGIAN

MODEL	MARK
GR-AX280EG	A
GR-AX380EG	B
GR-AX480EG	C

5.2 FINAL ASSEMBLY <M2>



ELECTRONIC VIEWFINDER <M4>
MECHANISM <M3>
MAIN1 <01>
CCD <02>
SENSOR <03>
REAR <05>
OPERATION (DECK) <20>
OPERATION (CAMERA) <21>
IR<22>
OPTICAL BLOCK SECTION
CAUTION LABEL
RATING LABEL
(ONLY USE FOR Ⓒ)
(ONLY USE FOR Ⓐ,Ⓑ)
101
101A
102
103
104
105
105A
105B
105C
105D
105E
105F
105G
105H
105J
105K
106
106A
107
108
109
109B
109C
109D
109E
109F
110
111
111A
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114
114A
114B
114C
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135A
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135C
135D
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150A
151
152
152A
152B
153
154
154A
155
156
157
158
201
201A
201B
201D
201E
201F
201G
202
203
204
205
206
a
b
c
d
e
f
h
j
k
m
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x
z
aa
dd
ee
ff
gg
hh

****

FINAL ASSEMBLY <M2>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	101	LY10044-003A	LOWER CASE ASSY
	101A	LY40081-001A	CAP
	102	LY20014-001A	GRIP BELT
	103	LY30018-003A	SPECIAL SCREW
	104	QYSLSF2055D	SPECIAL SCREW
	105	LY10046-003B	FRONT COVER ASSY,A,B
		LY10046-005B	FRONT COVER ASSY,C
	105A	LY30311-001A	HOOD
	105B	LY20128-001A	GUIDE(SHUTTER)
	105C	LY30313-001A	SHUTTER(1)
	105D	LY30314-001A	SHUTTER(2)
	105E	LY30315-001A	KNOB(SHUTTER)
	105F	LY40187-001A	TORSION SPRING
	105G	LY30316-001A	IR WINDOW,C
		LY30533-001A	IR WINDOW,A,B
	105H	YQ43762	SPECIAL SCREW
	105J	QYSLSF2050Z	SCREW,X3
	105K	LY30317-001A	COVER(LIGHT),A,B
	106	LY20083-001A	DC LIGHT,C
	106A	YQ44266	LAMP,C
	107	LY20082-001B	MICROPHONE
	108	QYSLSF2055D	SPECIAL SCREW
⚠	109	LY10049-003B	REAR COVER ASSY,A,B
⚠		LY10049-004B	REAR COVER ASSY,C
	109B	YQ32079	KNOB(B.RELEASE)
	109C	LY30318-001A	BKT(B.RELEASE)
	109D	LY30002-014A	COMPRES.SPRING
	109E	QYSLSF2040D	SCREW
	109F	LY30319-001A	COVER(JACK)
	110	YQ31821-1-4	CAP(LITHIUM)
	111	LY20090-005A	TOP COVER ASSY,A
		LY20090-007A	TOP COVER ASSY,B
⚠		LY20090-011A	TOP COVER ASSY,C
	111A	LY30324-001A	BUTTON(PLAY)
⚠	112	LY20092-002A	UPPER CASE
⚠	114	LY10054-001B	CASS.COVER ASSY,A,B
⚠		LY10054-002B	CASS.COVER ASSY,C
	114A	LY30326-002A	LCD WINDOW,A,B
		LY30326-005A	LCD WINDOW,C
	114B	LY30327-001A	HINGE(C.COVER)
	114C	QYSLSF2055D	SPECIAL SCREW,X2
	115	QYSLSF2055D	SPECIAL SCREW,X3
	116	QYSLSF2055D	SPECIAL SCREW,X4
	117	LY30333-001A	BKT(C.COVER)
	118	LY40190-001A	BUTTON(PUSH)ASSY,A,B
		LY40190-002A	BUTTON(PUSH)ASSY,C
	119	QYSLSF2055D	SPECIAL SCREW
	120	QYSLSF2055D	SPECIAL SCREW
	121	QYSLSF2055D	SPECIAL SCREW,X2
	122	QYSLSF2055D	SPECIAL SCREW
	123	QYSLSF2055D	SPECIAL SCREW,X2
	124	QYSLSF2055D	SPECIAL SCREW,X4
	125	QYSLSF2055D	SPECIAL SCREW,X2
	126	QYSLSF2055D	SPECIAL SCREW
	127	QYSLSF20A0D	SCREW
	128	QYSLSF2055D	SPECIAL SCREW,X2
	129	QYSLSF2055D	SPECIAL SCREW,X2
	130	QYSLSP2030D	SCREW
	132	QYSPSPU1760Z	SCREW
	133	LY30019-010A	SPECIAL SCREW
⚠	135	LY20094-001B	FRAME ASSY,A,B
⚠		LY20094-002B	FRAME ASSY,C
	135A	YQ31843	BASE
	135B	QYSLSF2060D	SCREW,X2
	135C	YQ43810	CONTACT(LIGHT),X2 C
	135D	WJM0003-001A	E-SI C WIRE C-F,C
	136	LY30335-001A	BKT(MECHA)
	137	QYSPSTU1725M	SCREW
	138	YQ43806-2	KNOB(LIGHT),C
	139	QYSLSF1750D	SCREW,X2
	140	QYSLSP2030D	SCREW
	141	QYSPSTU1750M	SCREW,X2
	142	QYSPSTU1725M	SCREW
	143	QYSLSF1750D	SCREW,X3
	144	YQ43762-4	SCREW,X2
	145	LY30018-009A	SPECIAL SCREW,X2
	148	QUQ105-2206AA	FFC WIRE,MAIN1 CN15-OP
	149	QAL0084-001	FPC,MAIN1 CN23-IR
	150	LY30514-001A	FRONT FRAME ASSY
	150A	YQ44144-1-1	TAPE GUIDE
	151	SPSH1725M	SCREW,X2
	152	YQ31752E	CASSETTE HOUSING ASSY
	152A	LY20093-001A	C.COVER INSIDE
	152B	LY40032-001B	TENSION SPRING
	153	YQ44457-3	SCREW,X4
	154	YQ44027A-7	CLEANER ASSY
	154A	YQ44109A-2	CLEANER ROLLER ASSY
	155	LY40320-001A	SPECIAL SCREW,X2
	156	LY30121-001B	KNOB/EJECT
	157	QAL0085-001	FPC,OPERATION(CAMERA)-MAIN1 CN16
	158	LY40559-001A	SHIELD SHEET, C

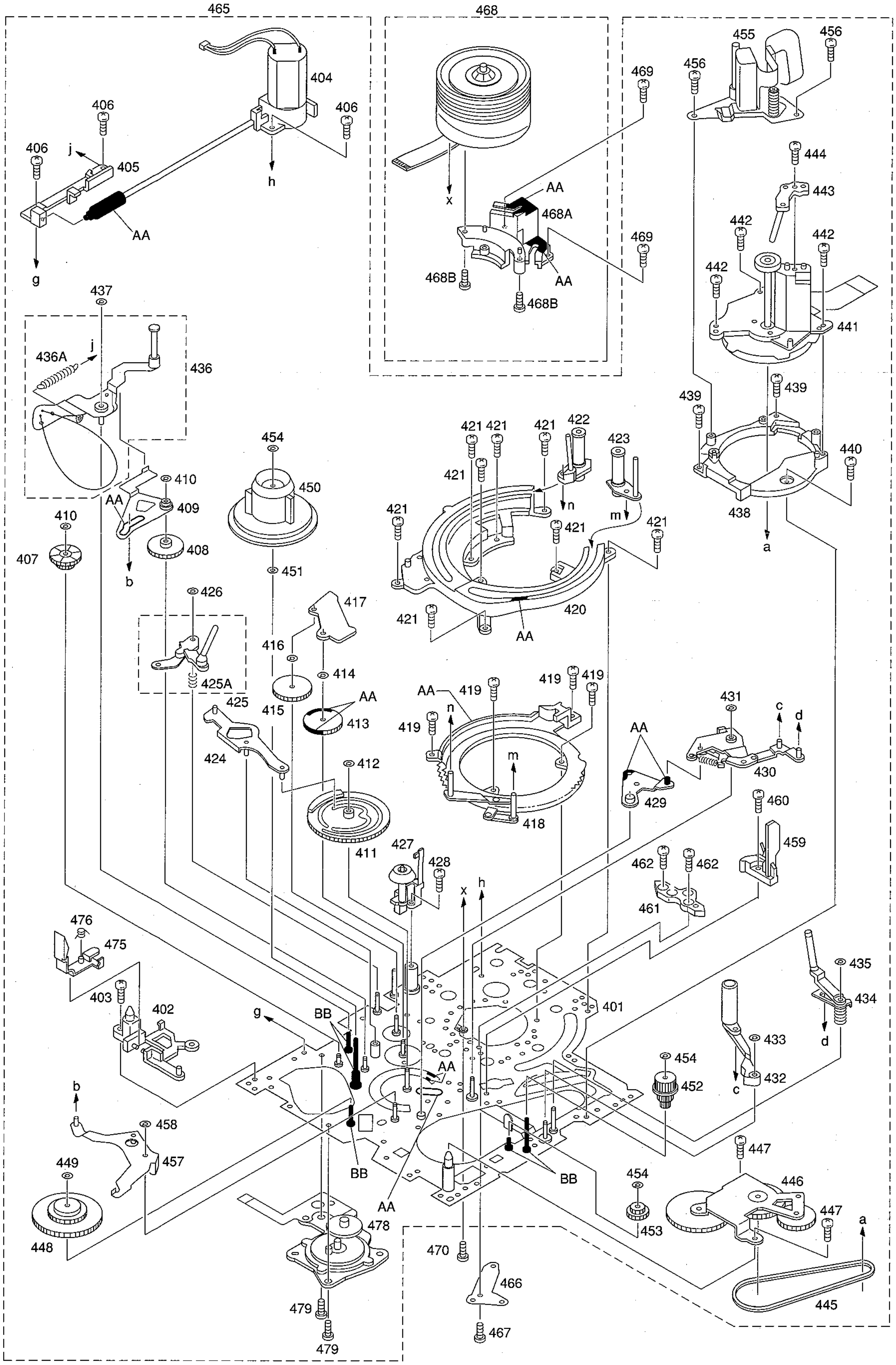
– OPTICAL BLOCK SECTION –

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	201	LY30526-001B	OP BLOCK ASSY
	201A	PTY30526-002	FOCUS MOTOR UNIT
	201B	PTY30526-001	ZOOM MOTOR UNIT
	201D	PTY30151-016	SCREW,X9
	201E	PTY30526-006	IRIS UNIT,INCL.FPC
	201F	PTY30526-021	RUBBER BUSH,X2
	201G	PTY30526-020	O RING
	202	YS40166B	CCD BASE ASSY
	203	SPSN2090Z	SCREW,X2
	204	LY30296-001A	SPACER RUBBER
	205	LY40549-001A	OP LPF
	206	LY20086-001A	CCD SPACER

5.3 MECHANISM ASSEMBLY <M3>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



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Classifi-cation	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	YTU94027	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

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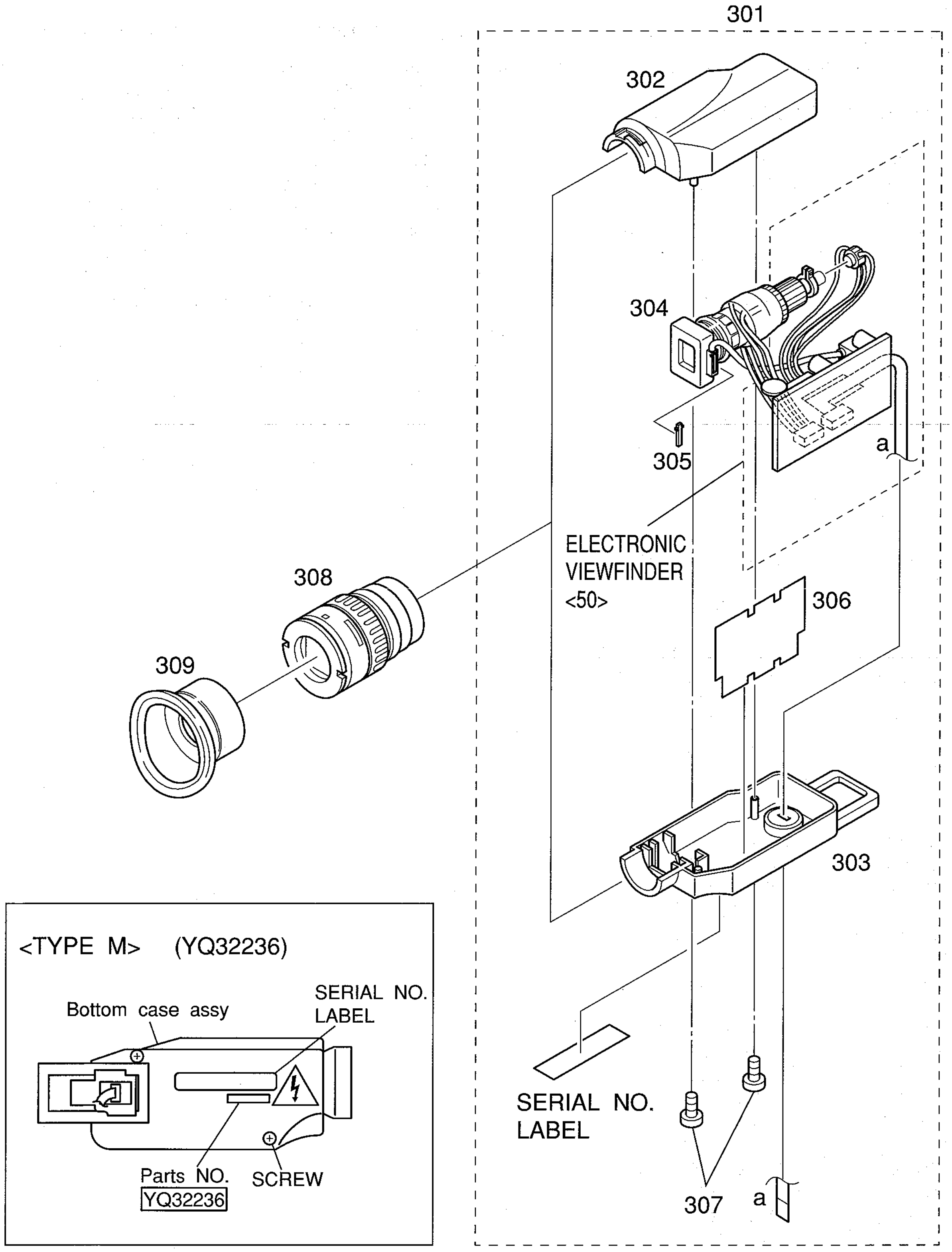
MECHANISM ASSEMBLY <M3>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
401	LY20182-001A	MAIN DECK ASSY
402	YQ32218	CASS.GUIDE(L)
403	YQ44457	SCREW
404	YQ31856A-3	MOTOR BRACKET ASSY
405	YQ20793	WORM BRACKET
406	YQ44457	SCREW,X3
407	YQ31783	WHEEL GEAR
408	YQ44328	MIDDLE GEAR
409	YQ43849B	CANCEL LEVER ASSY
410	PQM30017-27	SLIT WASHER,X2
411	YQ20827-2-1	CONTROL CAM
412	LY30015-001A	SLIT WASHER
413	YQ43853A	LOADING GEAR(T)ASSY
414	PQM30017-27	SLIT WASHER
415	YQ43852A	LOADING GEAR(S)ASSY
416	PQM30017-27	SLIT WASHER
417	YQ43634	COVER PLATE
418	YQ43635C-11	LOADING RING ASSY
419	YQ44457	SCREW,X4
420	YQ10516-1-11	GUIDE RAIL
421	YQ44457-5	SCREW,X8
422	YQ43646A-4	SUPPLY POLE BASE ASSY
423	YQ43654A-11	TAKE-UP POLE BASE ASSY
424	YQ44439A-2	DRIVE LEVER ASSY
425	YQ43663C-7	SLANT ARM ASSY
425A	YQ43670	TOR.SPRING(S)
426	PQM30017-27	SLIT WASHER
427	YQ44436A-3	ROLLER BASE ASSY
428	YQ44457	SCREW
429	YQ32230	LINK LEVER
430	YQ43682B	LINK ARM ASSY
431	PQM30017-25	SLIT WASHER
432	LY40018-001A	PINCH ROLLER ARM ASSY
433	PQM30017-25	SLIT WASHER
434	YQ44591A	TAKE-UP GUIDE ARM ASSY
435	PQM30017-27	SLIT WASHER
436	YQ44199C-7	TENSION ARM ASSY
436A	YQ43848-1-2	TENSION SPRING
437	PQM30017-27	SLIT WASHER
438	YQ20797-1-3	MOTOR BASE
439	YQ44457	SCREW,X2
440	YQ44460	SCREW
441	YU42078-2	CAPSTAN MOTOR
442	YQ44304	TAPPING SCREW,X3
443	YQ43708A-3	SLANT POLE BASE ASSY
444	YQ44304	TAPPING SCREW
445	YQ43710	TIMING BELT
446	YQ43711B-8	CENTER PULLEY UNIT
447	YQ44457-2	SCREW,X2
448	YQ43729A-2	SUPPLY CLUCH ASSY
449	PQM30017-27	SLIT WASHER
450	YQ31861-1-7	REEL DISC
451	Q03093-835	WASHER
452	YQ31787	TAKE-UP GEAR
453	YQ43737	BRAKE SUB GEAR
454	PQM30017-27	SLIT WASHER,X3
455	YQ43738C-15	A/C HEAD UNIT
456	SPSN1750Z	SCREW,X2
457	YQ43743B	EJECT LEVER ASSY
458	PQM30017-27	SLIT WASHER
459	YQ31833-1-1	LED GUIDE
460	YQ44457	SCREW
461	YQ43818	DRUM SPACER
462	YQ44457	SCREW,X2
465	YMA0023A	MECHA(A)ASSY
466	YU42051	BRUSH
467	LY40320-001A	SPECIAL SCREW
468	YDV2084A	DRUM ASSY
468A	YDM1003-1-5	CATCHER
468B	QYSPSPU1735M	SCREW,X2
469	YQ44457	SCREW,X2
470	SPSH1740Z	SCREW
475	YQ32219	SW.LEVER(L)
476	YQ44422-1-1	TORSION SPRING
478	QSW0455-003	ROTARY ENCODER
479	LY40320-002A	SPECIAL SCREW,X2

5.4 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX280EG/AX480EG]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<TYPE M> (YQ32236)
Bottom case assy
SERIAL NO. LABEL
Parts NO.
YQ32236
SCREW
SERIAL NO. LABEL
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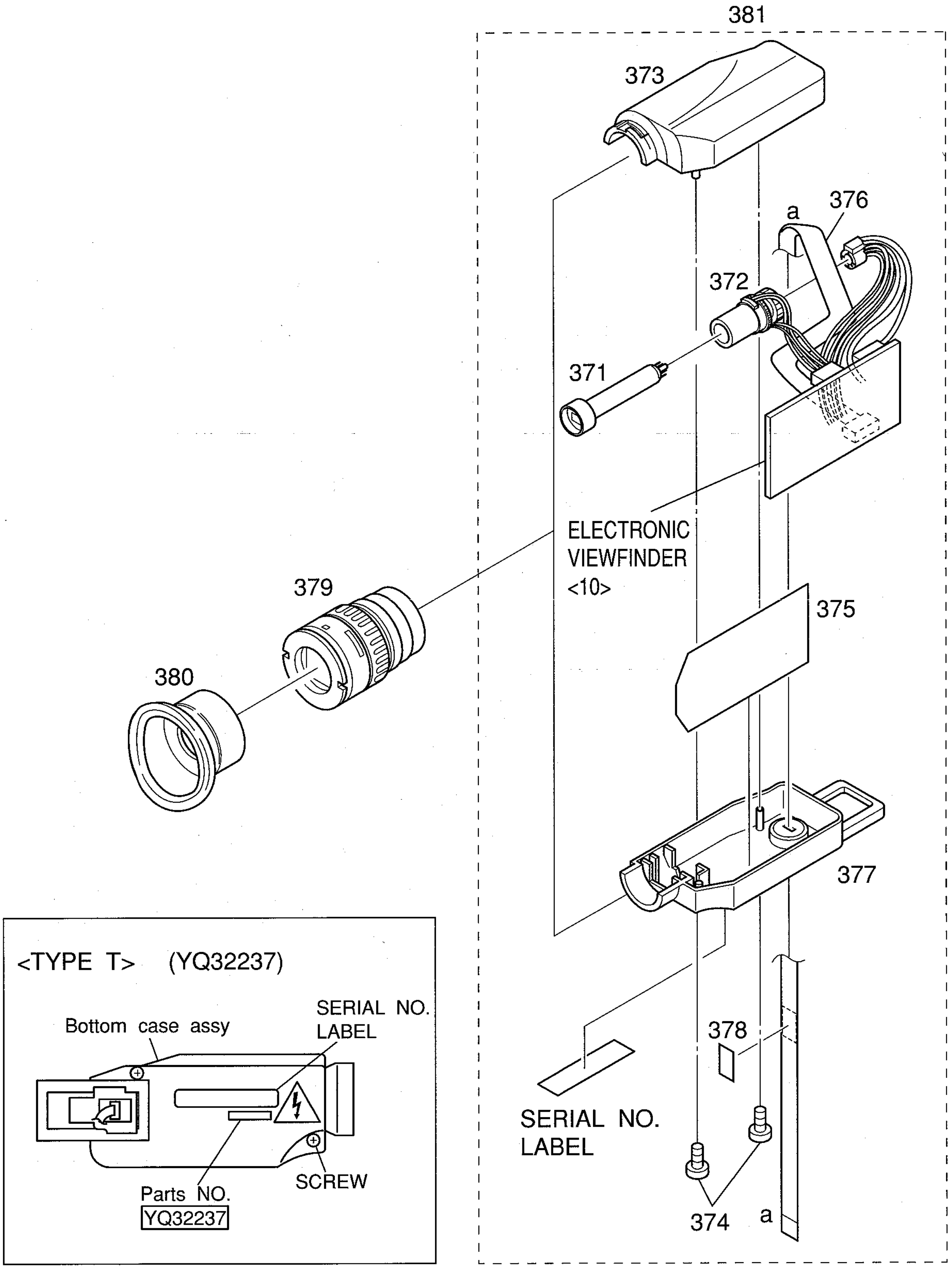
ELECTRONIC VIEWFINDER ASSEMBLY <M4>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	301	YQ32236J-3	EVF ASSY
⚠	302	YQ32236-001	TOP CASE
⚠	303	YQ32236-202	BOTTOM CASE ASSY
⚠	304	YQ31803-001	CRY/DY ASSY
⚠	305	YU30181-014	HV COVER
⚠	306	YQ31803-100	INSULATOR
	307	YU30045-014	SCREW,X2 M1.7X5
	308	YQ31803-200	LENS ASSY
	309	YQ31803-201	EYE CAP

5.5 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX280EG/AX480EG]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<TYPE T> (YQ32237)
Bottom case assy
SERIAL NO. LABEL
Parts NO.
YQ32237
SCREW

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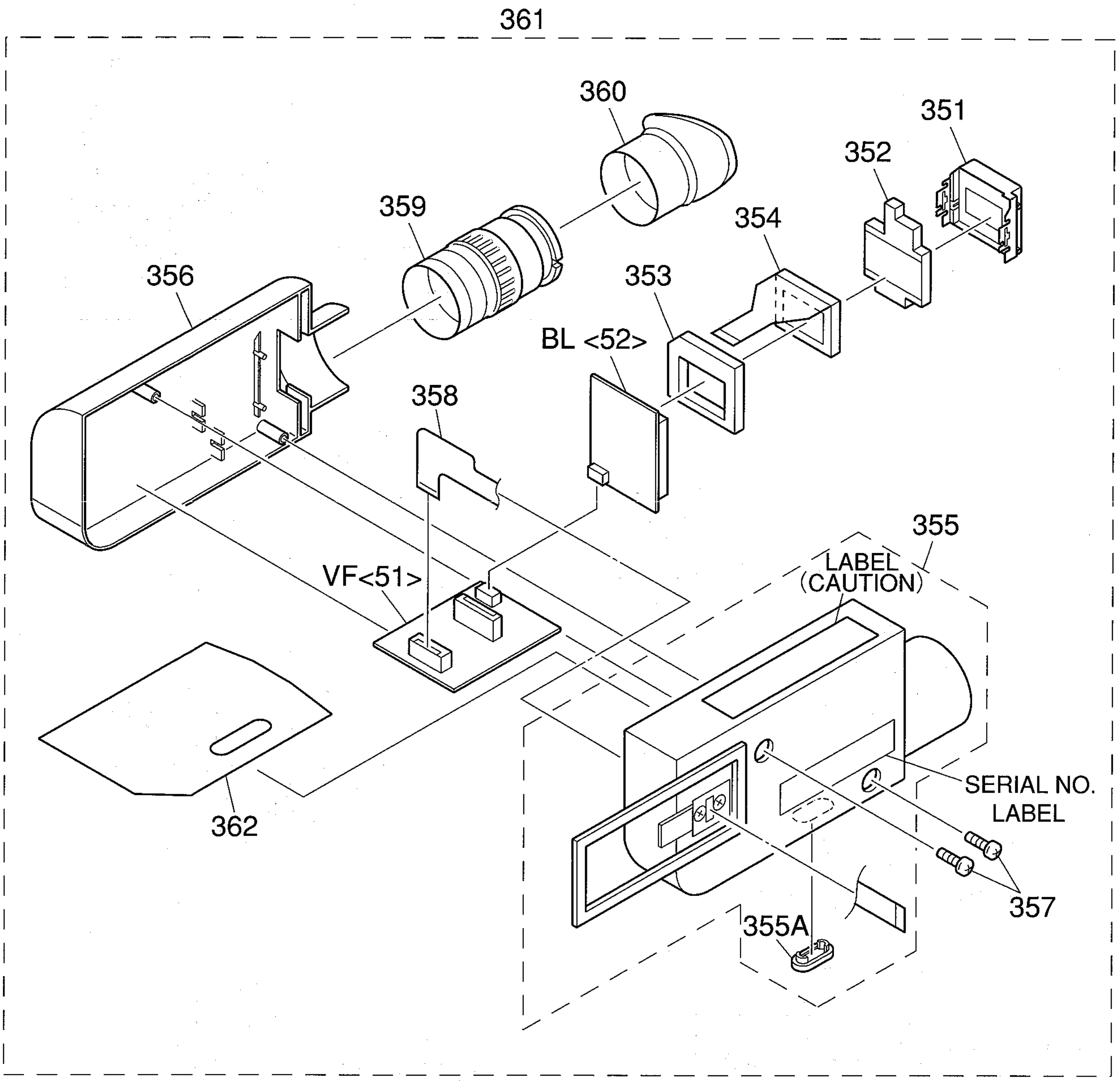
ELECTRONIC VIEWFINDER ASSEMBLY <M4>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	371	PEDP0193	CRT
⚠	372	PELN1179	DEFLECTION YOKE
⚠	373	YQ10628-2	TOP CASE
	374	QYSPSGU1750M	SCREW,X2
⚠	375	YQ44473	INSULATOR
	376	PEWR0819	FPC,CN7002-MAIN1 CN12
	377	YQ32237-202	BOTTOM CASE ASSY
	378	LY30016-070A	SPACER-A
	379	YQ31803-200	LENS ASSY
	380	YQ31803-201	EYE CAP
⚠	381	YQ32237H-2	EVF ASSY

5.6 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX380EG]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LABEL (CAUTION)
VF<51>
SERIAL NO. LABEL
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355A

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ELECTRONIC VIEWFINDER ASSEMBLY <M4>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	351	YQ31801-1-3	HOLDER(LCD)
	352	YQ43792	WINDOW(LCD)
	353	LY40016-001A	DAMPER/LAMP
	354	PEDP0191	LCD PANEL
⚠	355	LY30307-001A	BUTTOM CASE ASSY
	355A	YQ44253	CAP
⚠	356	YQ31932E-3	TOP CASE ASSY
	357	QYSPSGU2080M	SCREW,X2
	358	QAL0087-001	FPC,CN7001-MAIN1 CN12
	359	YQ31803-200	LENS ASSY
	360	YQ31803-201	EYE CAP
⚠	361	YS20899H-1	EVF ASSY
	362	LY40044-001A	INSULATOR

MODEL	MARK
GR-AX280EG	A
GR-AX380EG	B
GR-AX480EG	C

5.7 ELECTRICAL PARTS LIST

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MAIN1 BOARD ASSEMBLY <01>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PW1	YB10210PA1-01	MAIN1 BOARD ASSY,A	
		YB10210PC1-01	MAIN1 BOARD ASSY,B	
		YB10210PD1-01	MAIN1 BOARD ASSY,C	
	IC101	UPD703008-012	IC	
		or UPD70F3008-012	IC	
	IC102	S-81333HG-KF-X	IC	
	IC103	PST9127N	IC	
	IC104	RS5C314	IC	
	IC105	NM25C040LZEM8	IC	
	IC106	TC74HC4052AFS	IC	
		or TC74HC4052AFT	IC	
	IC108	JCY0075	IC	
	IC109	UPD6462GS-908-X	IC	
	IC110	TC7W00FU	IC	
	IC3001	JCY0060A	IC	
	IC3003	MN3875S	IC	
	IC4201	BA10324AFV-XE	IC	
	IC4202	BA10324AFV-XE	IC	
	IC4203	JCY0007-1-XE	IC	
	IC4205	UPC358GR	IC	
	IC4501	UPD16835G3	IC	
⚠	IC6001	FA3621F	IC	
	IC6002	MM1320AN	IC	
	Q101	2SA1774/RS/-X	TRANSISTOR	
	Q102	DTC144EE	TRANSISTOR	
	Q103	DTA114EE	TRANSISTOR,C	
	Q104	2SC4617/QR/-X	TRANSISTOR,C	
	Q107	DTC144EE	TRANSISTOR	
	Q108	2SC4617/QR/-X	TRANSISTOR	
	Q109	DTC124EE	TRANSISTOR	
	Q110	2SA1774/RS/-X	TRANSISTOR	
	Q111	DTC144EE	TRANSISTOR	
	Q112	DTA124EE	TRANSISTOR	
	Q3006	2SA1774/QRS/-X	TRANSISTOR	
	Q3008	2SC4617/QRS/-X	TRANSISTOR,B	
	Q3009	2SC4617/QRS/-X	TRANSISTOR,B	
	Q3011	2SC4617/QRS/-X	TRANSISTOR	
	Q3012	2SC4617/QRS/-X	TRANSISTOR	
	Q3082	2SC4617/QRS/-X	TRANSISTOR	
	Q3089	RN2104	TRANSISTOR	
	Q3231	2SC4617/QRS/-X	TRANSISTOR	
	Q3232	2SC4617/QRS/-X	TRANSISTOR	
	Q4011	2SA1832/Y/-X	TRANSISTOR	
	Q4013	DTC144EE	TRANSISTOR	
	Q4014	DTC144EE	TRANSISTOR	
	Q4017	2SC4617/QR/-X	TRANSISTOR	
	Q4201	XP1216	TRANSISTOR	
	Q4202	DTC144WU	TRANSISTOR	
	Q4203	DTA114EU	TRANSISTOR	
	Q4204	DTC144WU	TRANSISTOR	
	Q4205	XP5601	TRANSISTOR	
	Q4206	XP5601	TRANSISTOR	
	Q4207	XP5601	TRANSISTOR	
	Q4501	2SC4617/QR/-X	TRANSISTOR	
	Q4502	2SC4617/QR/-X	TRANSISTOR	
	Q4503	2SC4617/QR/-X	TRANSISTOR	
	Q4504	2SC4617/QR/-X	TRANSISTOR	
	Q6001	2SJ381	MOS FET	
	Q6002	2SA1774/QR/-X	TRANSISTOR	
	Q6003	DTC114EE	TRANSISTOR	
	Q6005	MPL1	TRANSISTOR	
	Q6009	MPL1	TRANSISTOR	
	Q6010	MPL1	TRANSISTOR	
	Q6011	2SK1467	FE TRANSISTOR	
	Q6012	2SJ381	MOS FET	
	Q6013	2SC4081/S/-X	TRANSISTOR	
	Q6019	2SA1774/QR/-X	TRANSISTOR	
	Q6020	2SC4617/QR/-X	TRANSISTOR	
	Q6021	DTA144EE	TRANSISTOR	
	Q6022	2SC4617/QR/-X	TRANSISTOR	
	Q6201	2SB1308/QR/-X	TRANSISTOR,C	
	Q6202	2SC4617/QR/-X	TRANSISTOR,C	
	Q6203	2SB1308/QR/-X	TRANSISTOR,C	
	D101	MA8075/M/-X	ZENER DIODE	
	D103	1SS355	DIODE	
	D104	RB751V-40-X	SB DIODE	
	D3002	DAN222	DIODE	
	D4201	MA8047/L/-X	ZENER DIODE	
	D4202	1SS355	DIODE	
	D4203	1SS355	DIODE	
	D4204	RD2.7S/B2/-X	ZENER DIODE	
	D4205	1SS355	DIODE	
	D4207	MA728	DIODE	
	D4501	MA728	DIODE	
	D6001	MA736	SB DIODE	
	D6005	1SS355	DIODE	
	D6008	1SS355	DIODE	
	D6010	1SS355	DIODE	
	D6011	1SS355	DIODE	
⚠	DA101	RB715F	DIODE	
	DA102	DAN222	DIODE	
	DA104	DAN222	DIODE	
	DA106	RB717F	SB DIODE	
	DA107	DAN222	DIODE	
	R101	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
	R102	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R103	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
	R104	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
	R105	NRVA63D-243X	CMF RESISTOR	24kΩ,1/16W
	R106	NRVA63D-183X	CMF RESISTOR	18kΩ,1/16W
	R107	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
	R108	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R109	NRSA63J-471X	MG RESISTOR,C	470Ω,1/16W
	R110	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R111	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R112	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R113	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R114	NRSA63J-221X	MG RESISTOR	220Ω,1/16W
	R115	NRSA63J-124X	MG RESISTOR	120kΩ,1/16W
	R116	NRSA63J-221X	MG RESISTOR	220Ω,1/16W
	R117	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R118	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R119	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
	R120	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R122	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
	R124	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
	R125	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R126	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R127	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
	R128	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
	R129	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R130	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
	R131	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
	R132	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
	R133	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R134	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R135	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R136	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R137	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
	R138	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
	R139	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
	R140	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
	R141	NRSA63J-0R0X	MG RESISTOR,B	0Ω,1/16W
		NRSA63J-153X	MG RESISTOR,A,C	15kΩ,1/16W
	R142	NRSA63J-0R0X	MG RESISTOR,B	0Ω,1/16W
		NRSA63J-153X	MG RESISTOR,A,C	15kΩ,1/16W
⚠	R143	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R144	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R145	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R146	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R147	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R148	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R149	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R150	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R151	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R152	NRSA63J-473X	MG RESISTOR,C	47kΩ,1/16W
	R153	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R154	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R155	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R156	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
	R157	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R158	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R159	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
	R160	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R161	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R162	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R165	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R166	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
	R170	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
	R171	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R173	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R175	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R176	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R177	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R178	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R179	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R180	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
	R181	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R182	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R183	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
	R184	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R185	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R186	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
	R187	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R188	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
	R189	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R190	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R191	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R192	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R193	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R194	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R195	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
	R3003	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R3004	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
	R3005	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3006	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
	R3007	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
	R3009	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R3010	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
	R3011	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
	R3012	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R3014	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3015	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
	R3016	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R3018	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R3019	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3020	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3022	NRVA63D-221X	CMF RESISTOR	220Ω,1/16W
	R3023	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R3024	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R3025	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R3026	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R3027	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3029	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R3030	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3031	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R3033	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R3034	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
	R3035	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R3036	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3037	NRSA63J-102X	MG RESISTOR,B	1kΩ,1/16W
	R3038	NRSA63J-102X	MG RESISTOR,B	1kΩ,1/16W
	R3039	NRSA63J-222X	MG RESISTOR,B	2.2kΩ,1/16W
	R3040	NRSA63J-222X	MG RESISTOR,B	2.2kΩ,1/16W
	R3043	NRVA63D-221X	CMF RESISTOR	220Ω,1/16W
	R3044	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
	R3046	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R3061	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
	R3066	NRSA02J-680X	MG RESISTOR	68Ω,1/10W
	R3067	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
	R3068	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
	R3072	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R3073	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
	R3090	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3091	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3220	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R3221	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R3222	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R3223	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
	R3224	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R3225	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
	R3226	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
	R3228	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R3229	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R3230	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3231	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R3232	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R3233	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
	R3234	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R3235	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R3236	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
	R3306	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R3311	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R4061	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R4062	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R4063	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R4064	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R4065	NDC31HJ-220X	CAPACITOR	22pF,50V
	R4068	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R4069	NRSA63J-392X	MG RESISTOR	3.9kΩ,1/16W
	R4070	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R4071	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R4077	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
	R4078	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R4079	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4080	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R4083	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R4085	NRSA63J-621X	MG RESISTOR	620Ω,1/16W
	R4087	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
	R4088	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
	R4091	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
	R4092	NRSA63J-912X	MG RESISTOR	9.1kΩ,1/16W
	R4094	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4095	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4096	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R4097	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
	R4098	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R4099	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R4100	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R4101	NRSA63J-155X	MG RESISTOR	1.5MΩ,1/16W
	R4103	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
	R4201	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
	R4202	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
	R4203	NRSA63J-151X	MG RESISTOR	150Ω,1/16W
	R4204	NRSA63J-433X	MG RESISTOR	43kΩ,1/16W
	R4205	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R4206	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
	R4207	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R4208	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
	R4209	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R4210	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
	R4211	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
	R4212	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
	R4213	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
	R4215	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
	R4216	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
	R4217	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
	R4218	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
	R4219	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
	R4220	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4221	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R4222	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4223	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4224	NRSA63J-241X	MG RESISTOR	240Ω,1/16W
	R4225	NRSA63J-751X	MG RESISTOR	750Ω,1/16W
	R4226	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R4227	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
	R4228	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
	R4229	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
	R4230	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R4231	NRSA63J-684X	MG RESISTOR	680kΩ,1/16W
	R4232	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R4233	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R4234	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
	R4235	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
	R4236	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R4237	NRSA63J-512X	MG RESISTOR	5.1kΩ,1/16W
	R4238	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
	R4239	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
	R4240	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R4241	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
	R4243	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
	R4244	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R4245	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
	R4246	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
	R4247	NRSA63J-124X	MG RESISTOR	120kΩ,1/16W
	R4249	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
	R4250	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
	R4252	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
	R4253	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
	R4254	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
	R4255	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
	R4256	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R4257	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
	R4258	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
	R4259	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
	R4260	NRSA63J-133X	MG RESISTOR	13kΩ,1/16W
	R4261	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R4262	NRSA63J-432X	MG RESISTOR	4.3kΩ,1/16W
	R4263	NRSA63J-392X	MG RESISTOR	3.9kΩ,1/16W
	R4264	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
	R4265	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
	R4266	NRSA63J-151X	MG RESISTOR	150Ω,1/16W
	R4267	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4268	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
	R4270	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4501	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
	R4502	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
	R4504	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4505	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4506	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
	R4507	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R4508	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
	R4510	NRSA63J-151X	MG RESISTOR	150Ω,1/16W
	R4511	NRSA63J-151X	MG RESISTOR	150Ω,1/16W
⚠	R4512	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
⚠	R4513	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
⚠	R4514	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
⚠	R4515	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
	R4516	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
	R4517	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
	R4519	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R6001	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R6002	NRVA63D-622X	CMF RESISTOR	6.2kΩ,1/16W
	R6004	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
	R6005	NRVA63D-303X	CMF RESISTOR	30kΩ,1/16W
	R6006	NRVA63D-244X	CMF RESISTOR	240kΩ,1/16W
	R6011	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
	R6012	NRVA63D-363X	CMF RESISTOR	36kΩ,1/16W
	R6013	NRVA63D-912X	CMF RESISTOR	9.1kΩ,1/16W
	R6014	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
	R6015	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R6019	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R6020	NRVA63D-363X	CMF RESISTOR	36kΩ,1/16W
R6021	NRVA63D-163X	CMF RESISTOR	16kΩ,1/16W
R6023	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R6024	NRVA63D-243X	CMF RESISTOR	24kΩ,1/16W
R6025	NRVA63D-332X	CMF RESISTOR	3.3kΩ,1/16W
R6026	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R6027	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R6028	NRVA63D-823X	CMF RESISTOR	82kΩ,1/16W
R6029	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R6030	NRVA63D-473X	CMF RESISTOR	47kΩ,1/16W
R6031	NRVA63D-302X	CMF RESISTOR	3kΩ,1/16W
R6032	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R6033	NRVA63D-113X	CMF RESISTOR	11kΩ,1/16W
R6034	NRVA63D-363X	CMF RESISTOR	36kΩ,1/16W
R6036	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6039	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R6040	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6041	NRVA63D-333X	CMF RESISTOR	33kΩ,1/16W
R6042	NRVA63D-222X	CMF RESISTOR	2.2kΩ,1/16W
R6043	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R6052	NRSA02J-0R0X	MG RESISTOR,B	0Ω,1/10W
R6054	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6055	NRVA63D-114X	CMF RESISTOR	110kΩ,1/16W
R6056	NRVA63D-104X	CMF RESISTOR	100kΩ,1/16W
R6057	NRVA63D-114X	CMF RESISTOR	110kΩ,1/16W
R6058	NRVA63D-104X	CMF RESISTOR	100kΩ,1/16W
R6060	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
R6061	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R6062	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R6063	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R6064	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
R6065	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R6066	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R6067	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6074	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R6075	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R6201	NRSA63J-103X	MG RESISTOR,C	10kΩ,1/16W
R6202	NRSA63J-102X	MG RESISTOR,C	1kΩ,1/16W
R6203	NRSA63J-103X	MG RESISTOR,C	10kΩ,1/16W
R6204	NRSA63J-103X	MG RESISTOR,C	10kΩ,1/16W
RA101	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA102	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA103	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA105	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA106	NRZ0012-103X	NETWORK RESISTOR	10kΩ
RA107	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA108	NRZ0012-331X	NETWORK RESISTOR	330Ω
RA3001	NRZ0012-222X	NETWORK RESISTOR	2.2kΩ
RA3002	NRZ0012-222X	NETWORK RESISTOR	2.2kΩ
C101	NEA70JM-226X	E CAPACITOR	22µF,6.3V
C102	NBE41AM-106X	T CAPACITOR	10µF,10V
C103	NCB31CK-104X	CAPACITOR	0.1µF,16V
C104	NBE21AM-225X	T CAPACITOR	2.2µF,10V
C105	NEA70JM-226X	E CAPACITOR	22µF,6.3V
C106	NEA70JM-226X	E CAPACITOR	22µF,6.3V
C107	NCB31EK-103X	CAPACITOR	0.01µF,25V
C108	NCB31EK-103X	CAPACITOR	0.01µF,25V
C109	NCF21CZ-474X	CAPACITOR	0.47µF,16V
C110	NCB31CK-333X	CAPACITOR	0.033µF,16V
C112	NDC31HJ-100X	CAPACITOR	10pF,50V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C113	NDC31HJ-120X	CAPACITOR	12pF,50V
C114	NEA71CM-106X	E CAPACITOR	10µF,16V
C115	NDC31HJ-101X	CAPACITOR	100pF,50V
C117	NCB31EK-103X	CAPACITOR	0.01µF,25V
C118	NCB31EK-103X	CAPACITOR	0.01µF,25V
C119	NDC31HJ-151X	CAPACITOR	150pF,50V
C121	NDC31HJ-151X	CAPACITOR	150pF,50V
C122	NCB31EK-103X	CAPACITOR	0.01µF,25V
C123	NCB31EK-103X	CAPACITOR	0.01µF,25V
C124	NCB31EK-103X	CAPACITOR	0.01µF,25V
C126	NCB31EK-153X	CAPACITOR	0.015µF,25V
C127	NCB31EK-103X	CAPACITOR	0.01µF,25V
C128	NCB31EK-103X	CAPACITOR	0.01µF,25V
C129	NCB31CK-333X	CAPACITOR	0.033µF,16V
C139	NDC31HJ-150X	CAPACITOR	15pF,50V
C140	NCB31EK-103X	CAPACITOR	0.01µF,25V
C141	NCB31EK-103X	CAPACITOR	0.01µF,25V
C142	NCB31EK-103X	CAPACITOR	0.01µF,25V
C143	NCB31EK-103X	CAPACITOR	0.01µF,25V
C144	NCB31EK-103X	CAPACITOR	0.01µF,25V
C145	NCB31EK-103X	CAPACITOR	0.01µF,25V
C146	NCB31EK-103X	CAPACITOR	0.01µF,25V
C147	NCB31EK-103X	CAPACITOR	0.01µF,25V
C148	NCB31EK-103X	CAPACITOR	0.01µF,25V
C149	NCB31EK-103X	CAPACITOR	0.01µF,25V
C150	NCB31EK-103X	CAPACITOR	0.01µF,25V
C151	NCB31EK-103X	CAPACITOR	0.01µF,25V
C152	NCB31EK-103X	CAPACITOR	0.01µF,25V
C153	NCB31EK-103X	CAPACITOR	0.01µF,25V
C154	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3002	NDC31HJ-470X	CAPACITOR	47pF,50V
C3003	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3004	NEA71HM-225X	E CAPACITOR	2.2µF,50V
C3005	NEZ0012-476X	E CAPACITOR	47µF
C3006	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3007	NCB31HK-332X	CAPACITOR	0.0033µF,50V
C3008	NCB11CK-105X	CAPACITOR	1µF,16V
C3009	NCB11CK-105X	CAPACITOR	1µF,16V
C3011	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3012	NDC31HJ-330X	CAPACITOR	33pF,50V
C3013	NCS31HJ-561X	CAPACITOR	560pF,50V
C3014	NCS31HJ-561X	CAPACITOR	560pF,50V
C3015	NDC31HJ-101X	CAPACITOR	100pF,50V
C3018	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3019	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3020	NEZ0012-476X	E CAPACITOR	47µF
C3021	NCF21CZ-105X	CAPACITOR	1µF,16V
C3023	NCB31EK-153X	CAPACITOR	0.015µF,25V
C3024	NDC31HJ-221X	CAPACITOR	220pF,50V
C3025	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3026	NDC31HJ-180X	CAPACITOR	18pF,50V
C3027	NDC31HJ-2R0X	CAPACITOR	2pF,50V
C3028	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3029	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3030	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3031	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3032	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3033	NBE20JM-225X	T CAPACITOR	2.2µF,6.3V
C3034	NBE20JM-475X	T CAPACITOR	4.7µF,6.3V
C3035	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3036	NCB31CK-104X	CAPACITOR	0.1µF,16V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C3037	NCB11CK-105X	CAPACITOR	1µF,16V
C3038	NCB31HK-122X	CAPACITOR	0.0012µF,50V
C3039	NBE40JM-226X	T CAPACITOR	22µF,6.3V
C3040	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3041	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3042	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3043	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3045	NEZ0012-476X	E CAPACITOR	47µF
C3046	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3047	NDC31HJ-150X	CAPACITOR	15pF,50V
C3049	NDC31HJ-221X	CAPACITOR	220pF,50V
C3052	NDC31HJ-271X	CAPACITOR	270pF,50V
C3053	NDC31HJ-101X	CAPACITOR	100pF,50V
C3054	NDC31HJ-5R0X	CAPACITOR	5pF,50V
C3061	NCB31HK-102X	CAPACITOR	0.001µF,50V
C3062	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3063	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3064	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3065	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3066	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3067	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3068	NCF21CZ-105X	CAPACITOR	1µF,16V
C3069	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3070	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3071	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3072	NCB31HK-102X	CAPACITOR	0.001µF,50V
C3073	NCB31HK-102X	CAPACITOR	0.001µF,50V
C3078	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3079	NCB21CK-224X	CAPACITOR	0.22µF,16V
C3222	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3223	NDC31HJ-121X	CAPACITOR	120pF,50V
C3224	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
C3231	NDC31HJ-330X	CAPACITOR	33pF,50V
C3232	NDC31HJ-151X	CAPACITOR	150pF,50V
C3233	NDC31HJ-680X	CAPACITOR	68pF,50V
C3234	NDC31HJ-820X	CAPACITOR	82pF,50V
C3235	NDC31HJ-100X	CAPACITOR	10pF,50V
C4031	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4032	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4033	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4034	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4035	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4036	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4037	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4038	NCF21CZ-474X	CAPACITOR	0.47µF,16V
C4039	NCF21CZ-225X	CAPACITOR	2.2µF,16V
C4040	NCF21CZ-105X	CAPACITOR	1µF,16V
C4041	NCF21CZ-105X	CAPACITOR	1µF,16V
C4042	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4043	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C4044	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4045	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4046	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4047	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4048	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4049	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4050	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4051	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4052	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4053	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4054	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C4058	NBE40JM-476X	T CAPACITOR	47µF,6.3V
C4061	NBE40JM-476X	T CAPACITOR	47µF,6.3V
C4201	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4202	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4203	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4204	NEA71EM-475X	E CAPACITOR	4.7µF,25V
C4205	NCB11CK-105X	CAPACITOR	1µF,16V
C4206	NCB11CK-105X	CAPACITOR	1µF,16V
C4208	NEA71CM-106X	E CAPACITOR	10µF,16V
C4209	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C4210	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4211	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4212	NDC31HJ-470X	CAPACITOR	47pF,50V
C4213	NDC31HJ-331X	CAPACITOR	330pF,50V
C4214	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4215	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4216	NCB31HK-681X	CAPACITOR	680pF,50V
C4217	NDC31HJ-221X	CAPACITOR	220pF,50V
C4218	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4219	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4220	NCB31EK-223X	CAPACITOR	0.022µF,25V
C4221	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4222	NCB31HK-102X	CAPACITOR	0.001µF,50V
C4223	NCF21CZ-105X	CAPACITOR	1µF,16V
C4224	NDC31HJ-5R0X	CAPACITOR	5pF,50V
C4225	NCB31EK-223X	CAPACITOR	0.022µF,25V
C4226	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4228	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4229	NDC31HJ-220X	CAPACITOR	22pF,50V
C4230	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4231	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4232	NDC31HJ-151X	CAPACITOR	150pF,50V
C4233	NDC31HJ-121X	CAPACITOR	120pF,50V
C4234	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4235	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4236	NCB31CK-273X	CAPACITOR	0.027µF,16V
C4237	NCB31CK-273X	CAPACITOR	0.027µF,16V
C4238	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C4240	NCB31CK-273X	CAPACITOR	0.027µF,16V
C4242	NCB31CK-473X	CAPACITOR	0.047µF,16V
C4243	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C4244	NEA71EM-475X	E CAPACITOR	4.7µF,25V
C4245	NCB31EK-153X	CAPACITOR	0.015µF,25V
C4246	NEA71EM-475X	E CAPACITOR	4.7µF,25V
C4247	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C4248	NCB21CK-224X	CAPACITOR	0.22µF,16V
C4249	NCB21AK-105X	CAPACITOR	1µF,10V
C4250	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4251	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C4252	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4254	NCB31EK-103X	CAPACITOR	0.01µF,25V
C4501	NEA71CM-106X	E CAPACITOR	10µF,16V
C4502	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4503	NEA71CM-107X	E CAPACITOR	100µF,16V
C4504	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4505	NDC31HJ-330X	CAPACITOR	33pF,50V
C4506	NCB31HK-102X	CAPACITOR	0.001µF,50V
C4507	NCB31HK-102X	CAPACITOR	0.001µF,50V
C4508	NCB31HK-102X	CAPACITOR	0.001µF,50V
C4509	NCB31HK-102X	CAPACITOR	0.001µF,50V
C4510	NCB31EK-103X	CAPACITOR	0.01µF,25V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C4511	NCB31CK-104X	CAPACITOR	0.1μF,16V
		C6001	NCB11CK-105X	CAPACITOR	1μF,16V
		C6003	NCB11CK-105X	CAPACITOR	1μF,16V
		C6005	NDC31HJ-391X	CAPACITOR	390pF,50V
		C6006	NCB31EK-103X	CAPACITOR	0.01μF,25V
		C6008	NCB31CK-104X	CAPACITOR	0.1μF,16V
		C6009	NCB21AK-105X	CAPACITOR	1μF,10V
		C6010	NCB31CK-104X	CAPACITOR	0.1μF,16V
		C6011	NCB31HK-102X	CAPACITOR	0.001μF,50V
		C6012	NCB31HK-152X	CAPACITOR	0.0015μF,50V
		C6013	NCB31HK-272X	CAPACITOR	0.0027μF,50V
		C6014	NCB31CK-683X	CAPACITOR	0.068μF,16V
		C6015	NCB31CK-104X	CAPACITOR	0.1μF,16V
		C6016	NCB31CK-104X	CAPACITOR	0.1μF,16V
		C6017	NCB31EK-103X	CAPACITOR	0.01μF,25V
		C6018	NCB31EK-103X	CAPACITOR	0.01μF,25V
		C6019	NCB31EK-103X	CAPACITOR	0.01μF,25V
		C6021	NCB11CK-105X	CAPACITOR	1μF,16V
		C6024	NDC31HJ-471X	CAPACITOR	470pF,50V
		C6025	NCB11CK-105X	CAPACITOR	1μF,16V
		C6027	NCB11CK-105X	CAPACITOR	1μF,16V
		C6028	NCB31HK-102X	CAPACITOR	0.001μF,50V
		C6029	NCB11CK-225X	CAPACITOR	2.2μF,16V
		C6030	NCB31HK-102X	CAPACITOR	0.001μF,50V
		C6033	NCB11CK-105X	CAPACITOR	1μF,16V
		C6034	NBE20JM-106X	T CAPACITOR	10μF,6.3V
		C6035	NCB31EK-103X	CAPACITOR	0.01μF,25V
		C6036	NCB11CK-105X	CAPACITOR	1μF,16V
		C6037	NCB31HK-152X	CAPACITOR	0.0015μF,50V
		C6039	NCB11CK-105X	CAPACITOR	1μF,16V
		C6041	NCB11CK-105X	CAPACITOR	1μF,16V
		C6042	NCB11CK-105X	CAPACITOR	1μF,16V
		C6043	NCB31HK-152X	CAPACITOR	0.0015μF,50V
		C6045	NCB11CK-105X	CAPACITOR	1μF,16V
		C6047	NCB11CK-105X	CAPACITOR	1μF,16V
		C6051	NCB11CK-105X	CAPACITOR	1μF,16V
		C6052	NCB11CK-105X	CAPACITOR	1μF,16V
		C6055	NCB11CK-474X	CAPACITOR	0.47μF,16V
		C6056	NCB31HK-102X	CAPACITOR	0.001μF,50V
		C6057	NCB11CK-105X	CAPACITOR	1μF,16V
		C6058	NCB11CK-105X	CAPACITOR	1μF,16V
		C6060	NCB21CK-224X	CAPACITOR	0.22μF,16V
		C6061	NCB21CK-224X	CAPACITOR	0.22μF,16V
		C6062	NCF21CZ-105X	CAPACITOR	1μF,16V
		C6063	NCB31CK-104X	CAPACITOR	0.1μF,16V
		C6065	NCB31EK-103X	CAPACITOR	0.01μF,25V
		C6067	NEA71CM-106X	E CAPACITOR	10μF,16V
		C6068	NCB11CK-105X	CAPACITOR	1μF,16V
		C6102	NBE20JM-106X	T CAPACITOR	10μF,6.3V
		C6201	NBE20JM-106X	T CAPACITOR	10μF,6.3V
		L101	NQL034K-330X	COIL	33μH
		L102	NQL184J-100X	COIL	10μH
		L3001	NQL144K-470X	COIL	47μH
		L3003	NQL144K-101X	COIL	100μH
		L3004	NQL085J-330X	COIL	33μH
		L3006	NQL085J-270X	COIL	27μH
		L3007	NQL184J-100X	COIL	10μH
		L3009	NQL184J-271X	COIL	270μH
		L3010	NQL144K-101X	COIL	100μH
		L3011	NQL085J-330X	COIL	33μH
		L3208	NQL085J-101X	COIL	100μH
		L3231	NQL184J-271X	COIL	270μH
		L3232	NQL085J-470X	COIL	47μH
		L4005	NQL144K-220X	COIL	22μH
		L4006	NQL034K-470X	COIL	47μH
		L4201	NQL034K-220X	COIL	22μH
		L4202	NQL144K-220X	COIL	22μH
		L4203	NQL184J-181X	COIL	180μH
		L4204	NQL184J-270X	COIL	27μH
		L4205	NQL184J-221X	COIL	220μH
		L4206	NQL184J-151X	COIL	150μH
		L4207	NQL144K-220X	COIL	22μH
		L4501	NQL034K-220X	COIL	22μH
		L4502	NQL034K-220X	COIL	22μH
		L6001	NQL17CM-100X	COIL	10μH
		L6002	NQL17CM-100X	COIL	10μH
		L6003	NQL17CM-390X	COIL	39μH
		L6004	NQL17CM-100X	COIL	10μH
		L6005	NQL144K-331X	COIL	330μH
		L6006	NRS181J-0R0X	MG RESISTOR	0Ω,1/8W
		L6007	NQL17CM-680X	COIL	68μH
		L6008	NQL03BK-150X	COIL	15μH
		L6009	NQL17CM-470X	COIL	47μH
		L6010	NQL03BK-150X	COIL	15μH
		L6011	NQL17CM-221X	COIL	220μH
		L6013	NQL164K-470X	COIL	47μH
		L6014	NQL164K-470X	COIL	47μH
		L6016	NQL144K-101X	COIL	100μH
		X101	QAX0342-001	CRYSTAL RESONATOR	
		X102	QAX0008-001	CRYSTAL RESONATOR	
		X3001	PEVB0616	CRYSTAL RESONATOR	
		CN11	QGA1002F2-13X	CONNECTOR	
		CN12	QGF0507F1-14X	FPC CONNECTOR,B	
			QGF0507F1-10X	FPC CONNECTOR,A,C	
		CN13	QGF0507F1-12X	FPC CONNECTOR	
		CN14	QGA1201F2-02X	CONNECTOR,C	
		CN15	QGF0503C1-22X	FFC/FPC CONNECTOR	
		CN16	QGF0507F1-10X	FPC CONNECTOR	
		CN21	QGB0501M1-60X	CONNECTOR	
		CN22	PEWR0835	LEAD BUS CONNECTOR,CCD CN51 ※	
		CN23	QGF0501F2-07X	FPC CONNECTOR	
		CN25	QGB0801K2-30X	CONNECTOR	
	⚠	CP6001	ICP-S0.5-X	CIRCUIT PROTECTOR,B	
	⚠	CP6002	ICP-S1.8-X	CIRCUIT PROTECTOR	
	⚠	CP6003	ICP-S1.8-X	CIRCUIT PROTECTOR	
	⚠	CP6004	ICP-S0.5-X	CIRCUIT PROTECTOR	
		SD1	LY40558-001A	SHIELD SHEET	
		SD2	LY40559-001A	SHIELD SHEET	

※ NOT INCL.MAIN1 BOARD ASSY

– SUB BOARD ASSEMBLY –

PW	YB20812A	SUB BOARD ASSY	
R6101	NRSA63J-1R0X	MG RESISTOR	1Ω,1/16W
C6101	NCB11CK-225X	CAPACITOR	2.2μF,16V

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CCD BOARD ASSEMBLY <02>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW2	YB10210PA2-01	CCD BOARD ASSY,A	
	YB10210PC2-01	CCD BOARD ASSY,B	
	YB10210PD2-01	CCD BOARD ASSY,C	
IC5201	UPD16510GR	IC	
IC5202	JCY0035	IC	
IC5203	AN2018S	IC	
Q5203	2SC3931/CD/-X	TRANSISTOR	
Q5204	2SC4617/QR/-X	TRANSISTOR	
Q5205	2SC4617/QR/-X	TRANSISTOR	
D5202	MA8091/L/-X	ZENER DIODE	
R5205	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5206	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5207	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5208	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5209	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5210	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R5213	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R5214	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R5215	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R5216	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R5217	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5218	NRSA63J-560X	MG RESISTOR	56Ω,1/16W
R5219	NRSA63J-560X	MG RESISTOR	56Ω,1/16W
R5220	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5221	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R5222	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R5223	NRSA63J-203X	MG RESISTOR	20kΩ,1/16W
R5226	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5228	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R5229	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R5232	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5233	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5234	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5235	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5238	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R5239	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
C5201	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5202	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5205	NCB21EK-104X	CAPACITOR	0.1µF,25V
C5206	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5209	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5211	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5213	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5215	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5217	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5218	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5219	NCB31CK-223X	CAPACITOR	0.022µF,16V
C5220	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5223	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5224	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5225	NDC31HK-470X	CAPACITOR	47pF,50V
C5226	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5227	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5228	NCB31CK-104X	CAPACITOR	0.1µF,16V
C5229	NDC31HK-470X	CAPACITOR	47pF,50V
C5230	NDC31HK-101X	CAPACITOR	100pF,50V
C5231	NBE40JM-226X	T CAPACITOR	22µF,6.3V
C5234	NCB31HK-102X	CAPACITOR	0.001µF,50V
C5235	NBE41AM-106X	T CAPACITOR	10µF,10V
C5237	NBE41DM-475X	T CAPACITOR	4.7µF,20V
C5238	NBE41DM-475X	T CAPACITOR	4.7µF,20V
C5239	NBE41AM-106X	T CAPACITOR	10µF,10V
L5201	NQL164K-220X	COIL	22µH
L5202	NQL164K-220X	COIL	22µH
L5203	NQL164K-220X	COIL	22µH
L5204	NQL164K-220X	COIL	22µH
L5205	NQL164K-220X	COIL	22µH
L5206	NQR0129-001X	FERRITE BEAD	
L5207	NQR0129-001X	FERRITE BEAD	
L5208	NQR0129-001X	FERRITE BEAD	
X5201	NAX0016-001X	CXO	
CN5201	PEMC1071	CCD SOCKET	

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SENSOR BOARD ASSEMBLY <03>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW	YB10220C-01	SENSOR BOARD ASSY	
IC1201	BA8400FV	IC	
⚠ IC1601	BA6865KV	IC	
IC2001	BA7751AFS	IC	
IC2071	BA15218F-XE	IC	
IC3501	M52385FP	IC	
Q1001	SPI-336-95-CD-X	IC(PHOTO SENSOR	
Q1002	SPI-336-95-CD-X	IC(PHOTO SENSOR	
Q1003	PN207-/NCLF/VI	PHOTO TRANSISTOR	
Q1004	PN207-/NCLF/VI	PHOTO TRANSISTOR	
Q2001	2SA1774/QR/-X	TRANSISTOR	
Q2002	2SA1774/QR/-X	TRANSISTOR	
Q2003	DTC144EE	TRANSISTOR	
Q2004	2SC4097/QR/-X	TRANSISTOR	
Q2005	UMX1N	PAIR TRANSISTOR	
Q2006	DTA114EE	TRANSISTOR	
Q2007	DTC144EE	TRANSISTOR	
Q2019	2SC4617/QR/-X	TRANSISTOR	
Q2020	DTC144EE	TRANSISTOR	
Q3501	2SD2114K/UV/-X	TRANSISTOR	
Q3502	2SD2114K/UV/-X	TRANSISTOR	
Q3503	2SD2114K/UV/-X	TRANSISTOR	
Q3504	2SD2114K/UV/-X	TRANSISTOR	
Q3506	DTC144EE	TRANSISTOR	
Q3507	DTC144EE	TRANSISTOR	
Q3509	2SC4617/QRS/-X	TRANSISTOR	
Q3901	2SC4617/R/-X	TRANSISTOR	
Q3902	2SC4617/R/-X	TRANSISTOR	
Q3903	DTC114EE	TRANSISTOR	
Q3904	DTA114EE	TRANSISTOR	
Q3905	DTC144EE	TRANSISTOR	
Q3906	DTC144EE	TRANSISTOR	
QA1601	BA6254FS	TR ARRAY	
QA1602	BA6254FS	TR ARRAY	
D1001	LN57-/LF/VI	LE DIODE	
R1201	NRSA63J-824X	MG RESISTOR	820kΩ,1/16W
R1202	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R1203	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R1204	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R1601	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1602	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R1603	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R1604	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R1605	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R1606	NRV142F-R33X	CMF RESISTOR	0.33Ω,1/4W
R1607	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
R1608	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R1609	NRS12BK-R68W	MG RESISTOR	0.68Ω,1/2W
R1610	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1611	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1612	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R1613	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1614	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
R1615	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R1616	NRVA63D-202X	CMF RESISTOR	2kΩ,1/16W
R1617	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R1618	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R1619	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R1620	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1621	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1622	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1623	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1624	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1625	NRSA63J-271X	MG RESISTOR	270Ω,1/16W
R1626	NRSA63J-271X	MG RESISTOR	270Ω,1/16W
R1627	NRSA63J-271X	MG RESISTOR	270Ω,1/16W
R1628	NRSA63J-271X	MG RESISTOR	270Ω,1/16W
R1629	NRSA63J-684X	MG RESISTOR	680kΩ,1/16W
R2001	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2002	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R2004	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2006	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2007	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R2008	NRSA63J-3R3X	MG RESISTOR	3.3Ω,1/16W
R2009	NRVA63D-432X	CMF RESISTOR	4.3kΩ,1/16W
R2010	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R2011	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
R2012	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R2013	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R2014	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2016	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
R2017	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R2019	NRSA63J-132X	MG RESISTOR	1.3kΩ,1/16W
R2020	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R2022	NRSA63J-470X	MG RESISTOR	47Ω,1/16W
R2023	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R2024	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R2025	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R2026	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2028	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2029	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2031	NRSA63J-155X	MG RESISTOR	1.5MΩ,1/16W
R2032	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2033	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R2034	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2035	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2036	NRSA63J-820X	MG RESISTOR	82Ω,1/16W
R2037	NRSA63J-820X	MG RESISTOR	82Ω,1/16W
R2038	NRSA63J-820X	MG RESISTOR	82Ω,1/16W
R2042	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2043	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R2052	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R2057	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R2058	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R2061	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R2062	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R2063	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2071	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2073	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R2075	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2076	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R2077	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R2078	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R2079	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R2080	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2082	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3501	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3503	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3504	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3506	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3508	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3509	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3514	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R3515	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
R3519	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3520	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R3522	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
R3901	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R3903	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R3904	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R3905	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R3906	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
C1201	NEA71CM-106X	E CAPACITOR	10μF,16V
C1202	NEA71CM-106X	E CAPACITOR	10μF,16V
C1204	NCB31HK-102X	CAPACITOR	0.001μF,50V
C1205	NCF21CZ-105X	CAPACITOR	1μF,16V
C1206	NBE41AM-106X	T CAPACITOR	10μF,10V
C1601	NCB31EK-103X	CAPACITOR	0.01μF,25V
C1602	NBE41AM-106X	T CAPACITOR	10μF,10V
C1603	NBE41AM-106X	T CAPACITOR	10μF,10V
C1604	NCB31HK-681X	CAPACITOR	680pF,50V
C1605	NCB21CK-474X	CAPACITOR	0.47μF,16V
C1606	NCB31HK-152X	CAPACITOR	0.0015μF,50V
C1607	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1608	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1609	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1610	NCF21EZ-224X	CAPACITOR	0.22μF,25V
C1611	NCF21EZ-224X	CAPACITOR	0.22μF,25V
C1612	NCF21EZ-224X	CAPACITOR	0.22μF,25V
C1613	NCF21EZ-224X	CAPACITOR	0.22μF,25V
C1614	NBE41CM-106X	T CAPACITOR	10μF,16V
C1615	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1616	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1617	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1618	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1619	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1620	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1621	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1622	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1623	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1624	NCB31EK-472X	CAPACITOR	0.0047μF,25V
C1625	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1626	NCB31CK-104X	CAPACITOR	0.1μF,16V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1627	NCB31CK-473X	CAPACITOR	0.047μF,16V
C1628	NCF21CZ-334X	CAPACITOR	0.33μF,16V
C1633	NCF21CZ-105X	CAPACITOR	1μF,16V
C2001	NBE41AM-226X	T CAPACITOR	22μF,10V
C2002	NCB31HK-682X	CAPACITOR	0.0068μF,50V
C2003	NDC31HJ-471X	CAPACITOR	470pF,50V
C2004	NFV41HJ-273X	MPPS CAPACITOR	0.027μF,50V
C2005	NDC31HJ-331X	CAPACITOR	330pF,50V
C2006	NCF21CZ-105X	CAPACITOR	1μF,16V
C2007	NCB31HK-152X	CAPACITOR	0.0015μF,50V
C2008	NCB31HK-152X	CAPACITOR	0.0015μF,50V
C2010	NBE21CM-105X	T CAPACITOR	1μF,16V
C2012	NCB31HK-681X	CAPACITOR	680pF,50V
C2013	NCB31EK-103X	CAPACITOR	0.01μF,25V
C2014	NBE21CM-105X	T CAPACITOR	1μF,16V
C2015	NBE40JM-476X	T CAPACITOR	47μF,6.3V
C2016	NCB21EK-683X	CAPACITOR	0.068μF,25V
C2018	NCB21EK-104X	CAPACITOR	0.1μF,25V
C2021	NEA70GM-476X	E CAPACITOR	47μF,4.0V
C2022	NEA70GM-476X	E CAPACITOR	47μF,4.0V
C2023	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
C2024	NEA70GM-476X	E CAPACITOR	47μF,4.0V
C2025	NBE40JM-476X	T CAPACITOR	47μF,6.3V
C2071	NBE40JM-476X	T CAPACITOR	47μF,6.3V
C2074	NCB11CK-105X	CAPACITOR	1μF,16V
C2075	NCB31EK-223X	CAPACITOR	0.022μF,25V
C2077	NDC31HJ-471X	CAPACITOR	470pF,50V
C2079	NBE21EM-474X	T CAPACITOR	0.47μF,25V
C2080	NCB31EK-223X	CAPACITOR	0.022μF,25V
C2083	NDC31HJ-331X	CAPACITOR	330pF,50V
C3501	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3502	NCF21CZ-105X	CAPACITOR	1μF,16V
C3503	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3504	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3505	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3506	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3507	NCF21CZ-105X	CAPACITOR	1μF,16V
C3508	NCB31EK-153X	CAPACITOR	0.015μF,25V
C3509	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3510	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3511	NDC31HJ-180X	CAPACITOR	18pF,50V
C3512	NDC31HJ-8R0X	CAPACITOR	8pF,50V
C3513	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3514	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3515	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3516	NDC31HJ-150X	CAPACITOR	15pF,50V
C3517	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3518	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3520	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3521	NDC31HJ-100X	CAPACITOR	10pF,50V
C3522	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3523	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3524	NDC31HJ-180X	CAPACITOR	18pF,50V
C3525	NCB31CK-473X	CAPACITOR	0.047μF,16V
C3901	NDC31HJ-151X	CAPACITOR	150pF,50V
C3903	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3904	NDC31HJ-101X	CAPACITOR	100pF,50V
C3905	NDC31HJ-101X	CAPACITOR	100pF,50V
L2001	NQL164K-101X	COIL	100μH
L2071	NQL092K-1R0X	COIL	1μH
L2072	NQL092K-1R0X	COIL	1μH
L3501	NQL144K-101X	COIL	100μH
L3901	NQL144K-101X	COIL	100μH
L3902	NQL184J-560X	COIL	56μH
L3903	NQL184J-560X	COIL	56μH
L3904	NQL184K-1R5X	COIL	1.5μH
SW1001	NSW0037-001X	PUSH SWITCH	
SW1002	NSW0036-001X	PUSH SWITCH	
T2001	NQR0002-001X	BIAS COIL	
CN1	QGF0503F2-10X	FFC/FPC CONNECTOR	
CN2	QGF0503F1-06X	FFC/FPC CONNE	
CN3	QGF0507F2-18X	FPC CONNECTOR	
CN4	QGA1201F2-02X	CONNECTOR	
CN5	QGF0503F2-11X	CONNECTOR	
CN6	QGB0501L1-60X	CONNECTOR	
CN7	QGF0507F2-11X	FPC CONNECTOR	
CN8	QGA1201F2-05X	CONNECTOR	
SD1	LY40493-001A	SHIELD CASE	
SD2	LY40546-001A	SHIELD SHEET	

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REAR BOARD ASSEMBLY <05>

PW	LY30395-005A	REAR BOARD ASSY,C
	LY30395-006A	REAR BOARD ASSY,A,B

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E.VF BOARD ASSEMBLY(GR-AX280EG/AX480EG TYPE T) <10>

PW	YB20776F	E.VF BOARD ASSY	
IC7001	BA7149F-XE	IC	
Q7001	2SD968A(RS)	PH TRANSISTOR	
Q7002	2SA1748(QR)	PH TRANSISTOR	
Q7003	2SA1748(QR)	PH TRANSISTOR	
D7001	MA142WA	DIODE	
R7002	NRSA02J-3R9X	MG RESISTOR	3.9Ω,1/10W
R7003	NRVA02D-183X	CMF RESISTOR	18kΩ,1/10W
R7005	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R7006	NRSA02J-113X	MG RESISTOR	11kΩ,1/10W
R7007	NRSA02J-330X	MG RESISTOR	33Ω,1/10W
R7008	NRSA02J-394X	MG RESISTOR	390kΩ,1/10W
R7009	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R7010	NRVA02D-104X	CMF RESISTOR	100kΩ,1/10W
R7011	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R7012	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R7013	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R7014	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R7015	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R7016	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R7017	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R7018	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R7019	NRSA02J-120X	MG RESISTOR	12Ω,1/10W
R7020	NRS181J-685X	MG RESISTOR	6.8MΩ,1/8W
R7021	NRSA02J-475X	MG RESISTOR	4.7MΩ,1/10W
R7022	NRSA02J-475X	MG RESISTOR	4.7MΩ,1/10W
R7023	NRSA02J-564X	MG RESISTOR	560kΩ,1/10W
R7024	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R7025	NRSA02J-275X	MG RESISTOR	2.7MΩ,1/10W
R7026	NRSA02J-275X	MG RESISTOR	2.7MΩ,1/10W
R7029	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R7030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
VR7001	NVP0001-221X	TRIM RESISTOR,V SIZE	
VR7002	NVP0001-225X	TRIM RESISTOR,BRIGHT	
VR7003	PERE0595-565	V RESISTOR,FOCUS	
C7001	QFV21HJ-104AZ	F CAPACITOR	0.1μF,50V
C7002	QEDR1AM-227	E CAPACITOR	220μF,10V
C7003	QEDR1AM-227	E CAPACITOR	220μF,10V
C7004	QEDP1AM-227	E CAPACITOR	220μF,10V
C7005	NCF21CZ-105X	CAPACITOR	1μF,16V
C7006	NCB21EK-153X	CAPACITOR	0.015μF,25V
C7007	NCB11CK-105X	CAPACITOR	1μF,16V
C7008	NCF21CZ-105X	CAPACITOR	1μF,16V
C7009	PECA1131-A107	E CAPACITOR	100μF,10V
C7010	PECA1135-Y	CAPACITOR	5600pF,100V
C7011	NDC21HJ-180X	CAPACITOR	18pF,50V
C7012	QEKC1HM-105	E CAPACITOR	1μF,50V
C7013	NCF21HZ-104X	CAPACITOR	0.1μF,50V
C7014	NCF21HZ-104X	CAPACITOR	0.1μF,50V
C7015	QCZ0136-151Z	CAPACITOR	150pF,1kV
C7016	PECA1133	CAPACITOR	330pF,500V
L7001	PELN1175	COIL	
L7002	PU49993-101	COIL	100μH
L7003	PELN1101-680JY	COIL	68μH
⚠ T7001	QQH0011-001	FB TRANSF	
CN7001	PEMC0856-4	CONNECTOR	
CN7002	PEMC1004-006	CONNECTOR	
CN7003	QNZ0010-001	CRT SOCKET	

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OPERATION(DECK)BOARD ASSEMBLY <20>

PW	LY10048-001A	OPERATION(DECK)BOARD ASSY	

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OPERATION(CAMERA)BOARD ASSEMBLY <21>

PW	LY10056-002A	OPERATION(CAMERA)BOARD ASSY,C	
	LY10056-001A	OPERATION(CAMERA)BOARD ASSY,A,B	

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IR BOARD ASSEMBLY <22>

PW	QAL0088-001	IR BOARD ASSY,C	
	QAL0088-004	IR BOARD ASSY,A,B	

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E.VF BOARD ASSEMBLY(GR-AX280EG/AX480EG TYPEM) <50>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW	YQ32236-601	E.VF BOARD ASSY	
IC1	BA7149F	IC	
Q1	2SA1037K	TRANSISTOR,TR1	
	or 2SA1179	TRANSISTOR,TR1	
	or 2SA1235	TRANSISTOR,TR1	
Q2	2SC4132	TRANSISTOR,TR2	
Q3	2SC4618	TRANSISTOR,TR3	
	or 2SC4655	TRANSISTOR,TR3	
D1	RLS245	DIODE	
R1	YQ31803-501	RESISTOR	9.1kΩ,1/10W
R2	QRSA08G-333YN	RESISTOR	33kΩ,1/10W
R3	QRSA08J-3R9YN	RESISTOR	3.9Ω,1/10W
R4	QRSA08J-390YN	RESISTOR	39Ω,1/10W
R5	YU30595-111	RESISTOR	390Ω,1/10W
R6	YU30595-113	RESISTOR	91kΩ,1/10W
R7	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R8	YQ31803-502	RESISTOR	2.2kΩ,1/10W
R9	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
VR1	YQ31803-504	V RESISTOR,V SIZE	470Ω
VR2	YQ31803-505	V RESISTOR,H HOLD	47kΩ
VR4	YQ31803-506	V RESISTOR,BRIGHT	1MΩ
R10	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R11	QRSA08J-330YN	RESISTOR	33Ω,1/10W
R12	QRSA08J-113YN	RESISTOR	11kΩ,1/10W
R13	YQ31803-503	RESISTOR	3.9kΩ,1/10W
R14	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R15	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R16	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R17	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R18	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R19	QRSA08F-103YN	RESISTOR	10kΩ,1/10W
R20	QRSA08F-152YN	RESISTOR	1.5kΩ,1/10W
R21	QRSA08J-275YN	RESISTOR	2.7MΩ,1/10W
R22	QRSA08J-275YN	RESISTOR	2.7MΩ,1/10W
R23	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R24	QRSA08J-154YN	RESISTOR	150kΩ,1/10W
R25	QRSA08J-2R7YN	RESISTOR	2.7Ω,1/10W
R26	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R27	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
C1	YQ31803-507	CAPACITOR	0.22μF,16V
C2	YQ31304-503	CAPACITOR	1μF,16V
C3	YQ31304-504	CAPACITOR	1500pF,50V
C4	YQ31304-503	CAPACITOR	1μF,16V
C5	QEDP1AM-227	E CAPACITOR	220μF,10V
C6	QEDP1AM-227	E CAPACITOR	220μF,10V
C7	QEDP1AM-227	E CAPACITOR	220μF,10V
C8	YQ31304-503	CAPACITOR	1μF,16V
C9	YQ31392-501	CAPACITOR	100pF,16V
C10	YU30531-163	CAPACITOR	0.047μF
C11	QER61HM-100	E CAPACITOR	10pF,50V
C12	YQ31803-508	F CAPACITOR	6200pF,100V
C13	YQ31304-506	E CAPACITOR	100μF,10V
C14	YQ31304-507	CAPACITOR	1500pF,630V
L1	YQ30723-115	COIL	100μH
TH1	YU30236-110	THERMISTOR	
⚠ FBT1	YQ31803-550	FLY BACK TRANS	
HLC1	YQ31803-560	H.COIL	
WR1	YQ32236-680	FPC	
CN1	YQ31803-570	CONNECTOR	
CN2	YQ31803-571	CONNECTOR	
CN3	YQ31803-572	CONNECTOR	

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VF BOARD ASSEMBLY(GR-AX380EG) <51>

PW1	YB20807E1	VF BOARD ASSY	
IC7001	FA7615CE	IC	

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC7002	UPC358GR	IC	
IC7003	CXA2503AR	IC	
IC7004	TK71230M	IC	
IC7005	NM25C020LZEM8	IC	
Q7001	DTC143ZE	TRANSISTOR	
	or RN1106	TRANSISTOR	
Q7002	2SC4655/BC/-X	TRANSISTOR	
Q7003	DTA114YE	TRANSISTOR	
	or RN2107	TRANSISTOR	
D7001	MA111	DIODE	
D7002	MA365	VARI CAP DIODE	
R7001	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W
R7002	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R7003	NRVA63D-473X	CMF RESISTOR	47kΩ,1/16W
R7005	NRVA63D-823X	CMF RESISTOR	82kΩ,1/16W
R7006	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R7007	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R7008	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R7009	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R7010	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R7011	NRVA63D-333X	CMF RESISTOR	33kΩ,1/16W
R7012	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R7013	NRVA63D-123X	CMF RESISTOR	12kΩ,1/16W
R7014	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R7015	NRVA63D-473X	CMF RESISTOR	47kΩ,1/16W
R7016	NRVA63D-683X	CMF RESISTOR	68kΩ,1/16W
R7017	NRSA63J-824X	MG RESISTOR	820kΩ,1/16W
R7018	NRVA63D-563X	CMF RESISTOR	56kΩ,1/16W
R7019	NRVA63D-682X	CMF RESISTOR	6.8kΩ,1/16W
R7020	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R7021	NRVA63D-682X	CMF RESISTOR	6.8kΩ,1/16W
R7022	NRVA63D-472X	CMF RESISTOR	4.7kΩ,1/16W
R7023	NRVA63D-151X	CMF RESISTOR	150Ω,1/16W
R7024	NRVA63D-273X	CMF RESISTOR	27kΩ,1/16W
R7025	NRVA63D-563X	CMF RESISTOR	56kΩ,1/16W
R7026	NRVA63D-563X	CMF RESISTOR	56kΩ,1/16W
R7031	NRSA63J-563X	MG RESISTOR	56kΩ,1/16W
R7032	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R7033	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R7034	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R7035	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7036	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R7037	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7039	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R7041	NRVA63D-272X	CMF RESISTOR	2.7kΩ,1/16W
R7042	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
R7043	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
R7044	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
R7045	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R7046	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R7047	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W
R7048	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R7049	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R7050	NRVA63D-122X	CMF RESISTOR	1.2kΩ,1/16W
R7051	NRVA63D-182X	CMF RESISTOR	1.8kΩ,1/16W
R7054	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7055	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
C7001	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7003	NDC31HJ-330X	CAPACITOR	33pF,50V
C7004	NDC21HJ-222X	CAPACITOR	0.0022µF,50V
C7005	NBE50GM-686X	T CAPACITOR	68µF,4.0V
C7006	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7008	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7009	NCF21CZ-105X	CAPACITOR	1µF,16V
C7010	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7011	NCF21CZ-105X	CAPACITOR	1µF,16V
C7012	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7014	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7015	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C7016	NCB11CK-105X	CAPACITOR	1µF,16V
C7017	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7018	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C7019	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7020	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7021	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7024	NCB11CK-105X	CAPACITOR	1µF,16V
C7025	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7027	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7028	NBE41CM-106X	T CAPACITOR	10µF,16V
C7029	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7030	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7031	NCF21CZ-105X	CAPACITOR	1µF,16V
C7032	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7033	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7034	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7035	NCB21EK-333X	CAPACITOR	0.033µF,25V
C7036	NCB11CK-105X	CAPACITOR	1µF,16V
C7037	NCF21CZ-105X	CAPACITOR	1µF,16V
C7038	NDC31HK-221X	CAPACITOR	220pF,50V
C7039	NDC31HJ-680X	CAPACITOR	68pF,50V
C7041	NCB31HK-332X	CAPACITOR	0.0033µF,50V
C7042	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7043	NCF11CZ-225X	CAPACITOR	2.2µF,16V
C7044	NCF21CZ-105X	CAPACITOR	1µF,16V
C7046	NCB11CK-105X	CAPACITOR	1µF,16V
C7047	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7048	NCF31CZ-104X	CAPACITOR	0.1µF,16V
C7049	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7050	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C7051	NCB31EK-103X	CAPACITOR	0.01µF,25V
L7001	NQL144K-220X	COIL	22µH
L7002	NQL144K-220X	COIL	22µH
L7003	NQL184J-120X	COIL	12µH
L7004	NRS181J-0R0X	MG RESISTOR	0Ω,1/8W
CN7001	QGF0503C1-14X	FPC CONNECTOR	
CN7002	QGB1002J1-10X	CONNECTOR	
CN7003	QGF0503C1-16X	FPC CONNECTOR	

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BL BOARD ASSEMBLY(GR-AX380EG) <52>

PW2	YB20807E2	BL BOARD ASSY	
Q7301	2SK2742	POWER MOS FET	
R7301	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
C7301	NBE71CM-336X	T CAPACITOR	33µF,16V
C7302	NCF31CZ-104X	CAPACITOR	0.1µF,16V
L7301	NQL144K-220X	COIL	22µH
T7301	NQS0009-001X	SW TRANSF	
BL7301	NLL0001-001	LAMP	
CN7301	QGB1002K1-10X	CONNECTOR	

SECTION 6
TECHNICAL INFORMATION

6.1 EMERGENCY DISPLAY

Whenever some abnormal signal is supplied to mechacon CPU, an error number (E 04, for example) displayed in the electronic view finder.

- In an emergency mode, all operations except turning on/off the POWER switch are ineffectual.

E. VF/LCD	Symptom	Mode when observed	Resulting mode
E07	Short circuit of capstan MDA	Power ON	Power OFF
E06	CAPSTAN FG input absent	EDIT	Power OFF
E04	DRUM FF input absent	DRUM rotation	Power OFF
E03	SUPPLY REEL FG input absent	REC, PLAY, SEARCH, FF	UNLOADING →Power OFF
E02	Mode control motor rotates for more than 10 sec without shift to next mode.	UNLOADING	Power OFF
E01	Mode control motor rotates for more than 10 sec without shift to next mode.	UNLOADING	Power OFF
E00	Overtime the programming transaction	REC, PLAY	Power OFF

6.2 DEMONSTRATION MODE

This model has the DEMONSTRATION mode.

1) How to set the DEMONSTRATION mode.

The camera can be entered into the DEMONSTRATION mode by setting on the MOVIE MENU screen appearing in the viewfinder.

When entering the camera into the DEMONSTRATION mode, pay heed to the following matters.

1. The SELECT DIAL is set at except the "LOCK" position.
2. No cassette is set in the camcorder or a cassette is set in the camcorder but it is protected from recording.

1. Set the POWER switch to turn on the "CAMERA".
   Assume that the SELECT DIAL is set at "FG".
   Press the MENU JOG DIAL once.
   The first page of the MOVIE MENU appears in the viewfinder.
2. Turn the MENU JOG DIAL in the direction of the arrow to set the cursor at "NEXT".
   The second page of the MOVIE MENU appears in the viewfinder.

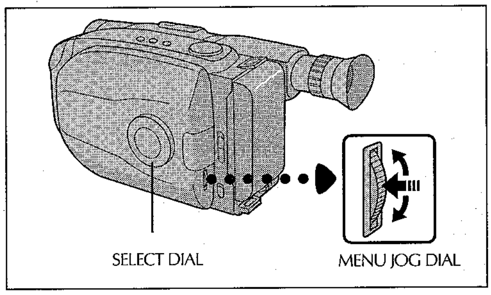
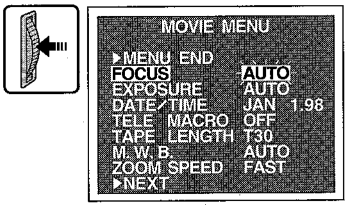
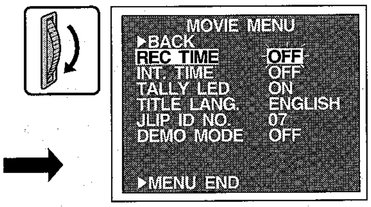


Fig. 6-1



MOVIE MENU
▶MENU END
FOCUS AUTO
EXPOSURE AUTO
DATE/TIME JAN 1.98
TELE MACRO OFF
TAPE LENGTH T30
M. W. B. AUTO
ZOOM SPEED FAST
▶NEXT

Menu Screen 1



MOVIE MENU
▶BACK
REC TIME OFF
INT. TIME OFF
TALLY LED ON
TITLE LANG. ENGLISH
JLIP ID NO. 07
DEMO MODE OFF
▶MENU END

Menu Screen 2

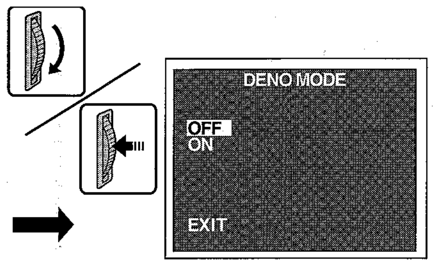
<Flow chart>

1. FG : FOG
2. ND : ND EFFECT
3. SEPIA
4. AUTO RELEASE
5. FADER (BLACK)
6. WIDE
7. TITLE (Note: Eight titles appear one after another in this order.)
    - HAPPLY BIRTHDAY
    - OUR VACATION
    - MERRY CHRISTMAS
    - A SPECIAL DAY
    - HAPPY HOLIDAYS
    - OUR NEW BABY
    - WEDDING DAY
    - CONGRATULATIONS
    - No display

Fig. 6-2

2) How to cancel the DEMONSTRATION mode.
To cancel the DEMONSTRATION mode, turn the POWER switch off ("POWER OFF").

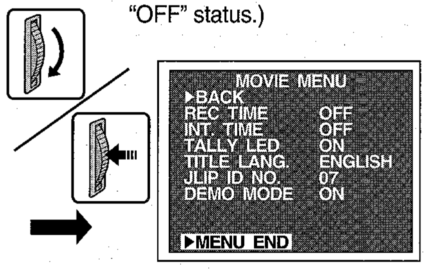
3. Turn the MENU JOG DIAL in the direction of the arrow to set the cursor at "DEMO MODE". Then, press the MENU JOG DIAL once. The third page of the DEMO MODE appears in the viewfinder.



DENO MODE
OFF
ON
EXIT

Menu Screen 3

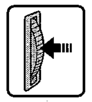
4. Turn the MENU JOG DIAL in the direction of the arrow to set the cursor at "ON". Then, press the MENU JOG DIAL once. The fourth page of the MOVIE MENU appears in the viewfinder. ("DEMO MODE" is switched "ON" from "OFF" status.)



MOVIE MENU
▶BACK
REC TIME OFF
INT. TIME OFF
TALLY LED ON
TITLE LANG. ENGLISH
JLIP ID NO. 07
DEMO MODE ON
▶MENU END

Menu Screen 4

5. Press the MENU JOG DIAL once. The camcorder automatically enters the DEMONSTRATION mode and it repeats demonstration operation. While the camcorder is performing demonstration, all operations except turning on/off the POWER switch are ineffectual.



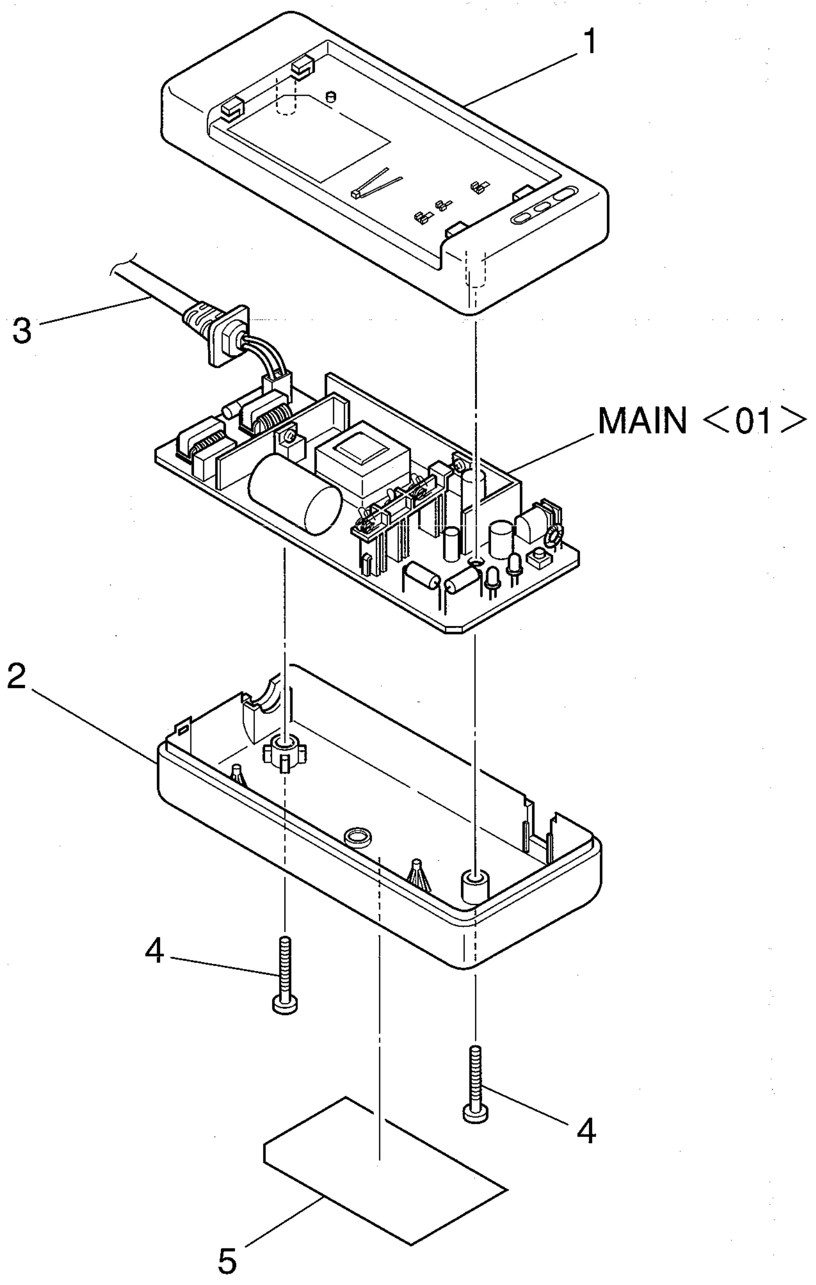
Refer to Fig. 6-2.
While the DEMONSTRATION mode is activated, a word of "DEMONSTRATION" is appearing on the screen scrolling from right to left.

SECTION 7
AC POWER ADAPTER (AA-V15EG)

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

7.1 CABINET ASSEMBLY <M2>

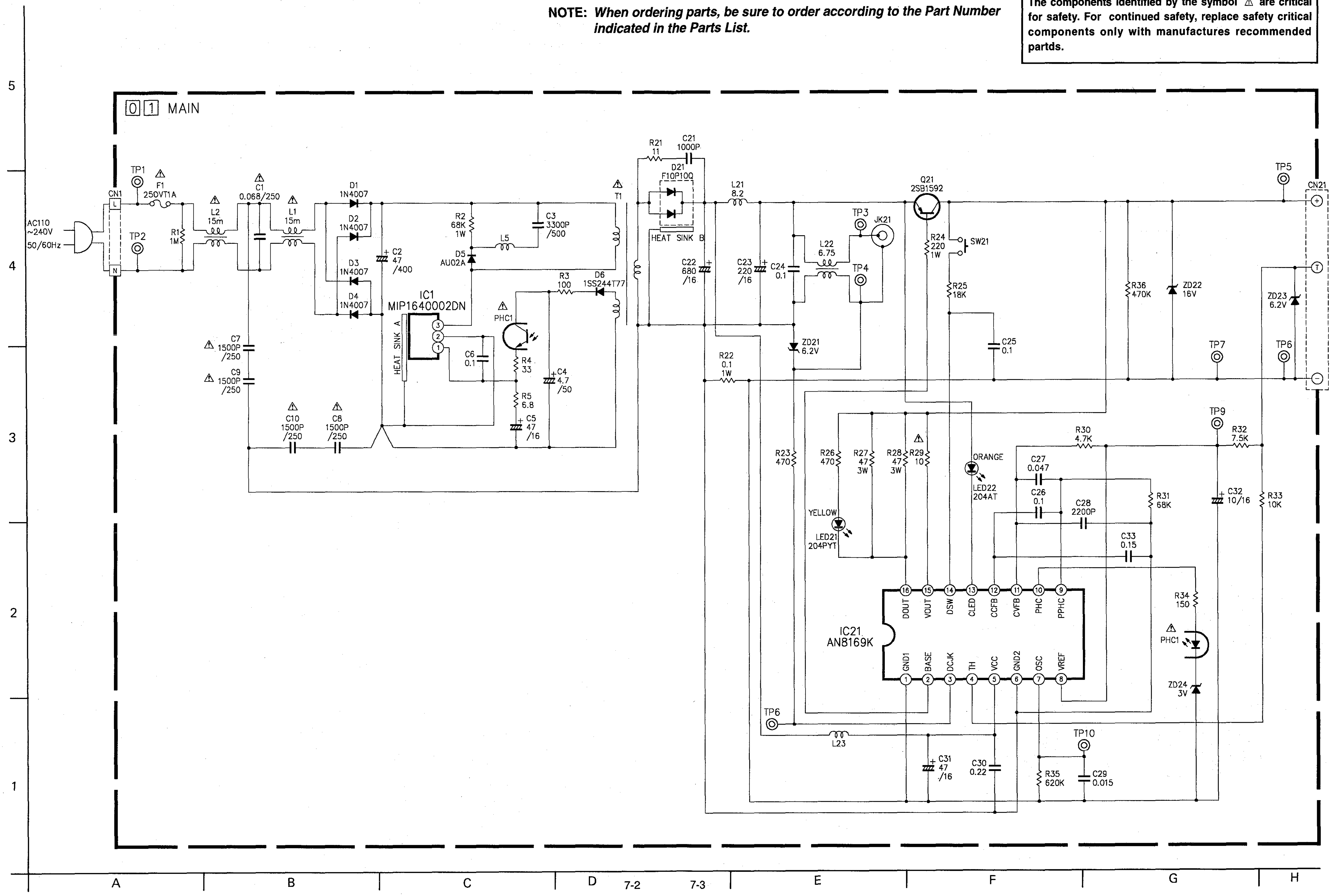


# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱		
CABINET ASSEMBLY <M2>		
1	PTY10067-003	UPPER CASE ASSY
2	PTY10067-013	LOWER CASE
⚠ 3	YQ10531-006	POWER CORD
4	YQ10531-011	SCREW , X2
⚠ 5	–	RATING LABEL

7.2 SCHEMATIC DIAGRAM

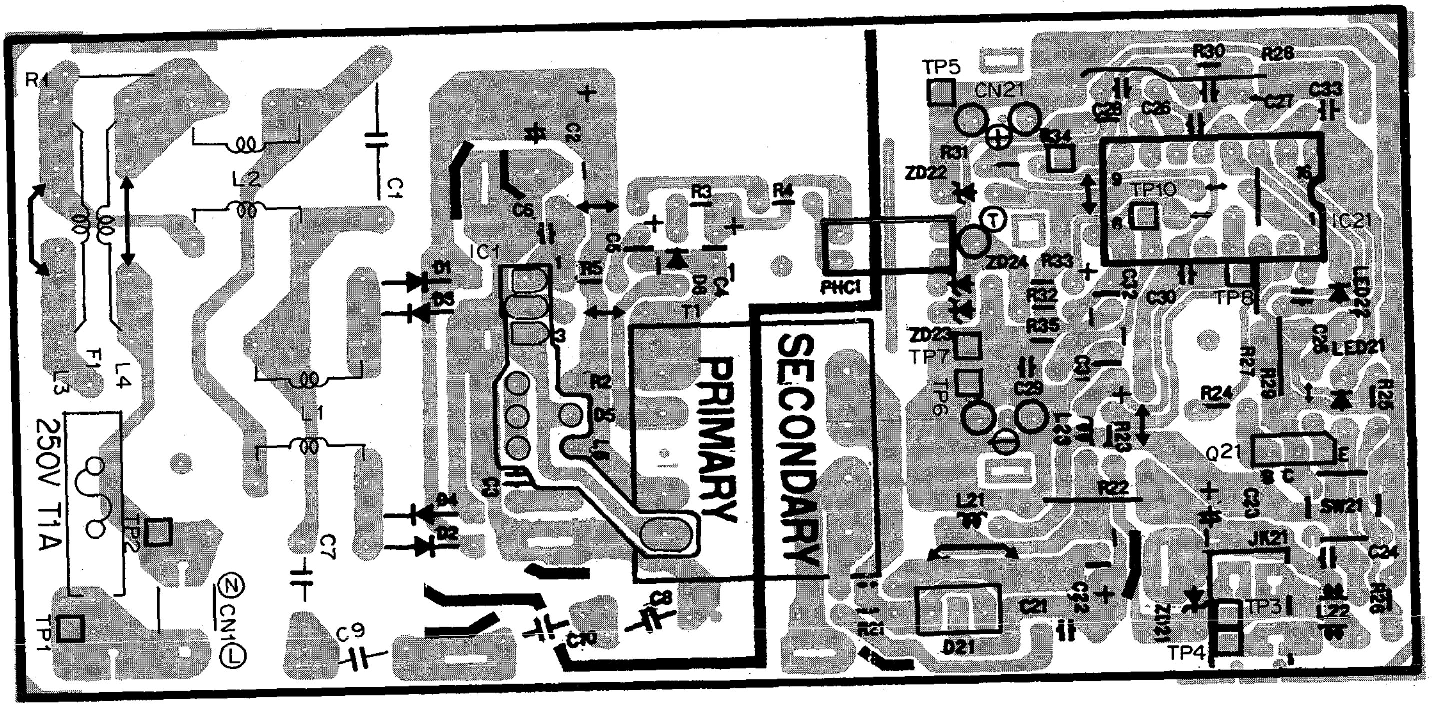
NOTE: ***When ordering parts, be sure to order according to the Part Number indicated in the Parts List.***

Safety precaitons
The components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufactures recommended partds.



01 MAIN
AC110 ~240V 50/60Hz
CN1
L
N
TP1
TP2
F1 250VT1A
R1 1M
L2 15m
C1 0.068/250
L1 15m
D1 1N4007
D2 1N4007
D3 1N4007
D4 1N4007
C2 47 /400
R2 68K 1W
D5 AU02A
L5
C3 3300P /500
T1
IC1 MIP1640002DN
HEAT SINK A
PHC1
R3 100
D6 1SS244T77
C6 0.1
R4 33
R5 6.8
C5 47 /16
C4 4.7 /50
C7 1500P /250
C9 1500P /250
C10 1500P /250
C8 1500P /250
R21 11
C21 1000P
D21 F10P10Q
HEAT SINK B
C22 680 /16
L21 8.2
C23 220 /16
C24 0.1
L22 6.75
TP3
JK21
TP4
ZD21 6.2V
R22 0.1 1W
Q21 2SB1592
R24 220 1W
SW21
R25 18K
C25 0.1
R36 470K
ZD22 16V
TP5
CN21
+
T
−
ZD23 6.2V
TP7
TP6
TP9
R30 4.7K
R32 7.5K
R23 470
R26 470
R27 47 3W
R28 47 3W
R29 10
ORANGE
LED22 204AT
YELLOW
LED21 204PYT
C27 0.047
C26 0.1
C28 2200P
R31 68K
C32 10/16
R33 10K
C33 0.15
IC21 AN8169K
16 DOUT
15 VOUT
14 DSW
13 CLED
12 CCFB
11 CVFB
10 PHC
9 PPHC
1 GND1
2 BASE
3 DCJK
4 TH
5 VCC
6 GND2
7 OSC
8 VREF
R34 150
PHC1
ZD24 3V
TP6
L23
C31 47 /16
C30 0.22
TP10
R35 620K
C29 0.015
1
2
3
4
5
A
B
C
D
E
F
G
H

7.3 CIRCUIT BOARD


R1
L2
C1
L3
F1
L4
250V T1A
TP2
TP1
CN1
C7
C9
L1
D1
D3
D4
D2
IC1
C6
C2
R3
R4
R5
C5
D6
C4
T1
R2
D5
C3
C8
C10
PHC1
PRIMARY
SECONDARY
TP5
CN21
R31
ZD22
ZD24
R33
R32
R35
ZD23
TP7
TP6
C29
L21
R21
D21
C21
C32
R34
C28
C26
R30
R28
C27
C33
TP10
IC21
TP8
C30
C31
R22
R23
R27
R29
R24
LED22
C25
LED21
R25
Q21
B C E
SW21
C23
JK21
C24
ZD21
TP3
L22
R26
TP4

7.4 ELECTRICAL PARTS LIST

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MAIN BOARD ASSEMBLY <01>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
⚠	PW1	PTY10067-502	MAIN BOARD ASSY	
	IC1	MIP1640002DN	IC	
	IC21	AN8169K	IC	
	Q21	2SB1592	TRANSISTOR	
	or	2SA1615	TRANSISTOR	
	D1	1N4007	DIODE	
	D2	1N4007	DIODE	
	D3	1N4007	DIODE	
	D4	1N4007	DIODE	
	D5	AU02A	DIODE	
	D6	1SS244T77	DIODE	
	D21	MA7D61	DIODE	
	ZD21	MA4062	ZENER DIODE	
	ZD22	MA4160	ZENER DIODE	
	ZD23	MA4062	ZENER DIODE	
	ZD24	MA4030	ZENER DIODE	
	LED21	YQ10531-543	LED	
	LED22	YQ10531-541	LED	
	R1	QRN141J-105	RESISTOR	1MΩ,1/4W
	R2	QRL01DJ-683X	CMF RESISTOR	68kΩ,1W
	R3	QRZ0125-101	RESISTOR	100Ω,1/4W
	R4	QRZ0125-330	RESISTOR	33Ω, 1/4W
	R5	QRZ0125-6R8	RESISTOR	6.8Ω,1/4W
	R21	PTY20080-512	RESISTOR	11Ω,1/4W
	R22	QRZ0192-R10X	MF RESISTOR	0.1Ω,1W
	R23	QRZ0125-471	RESISTOR	470Ω,1/4W
	R24	QRL01DJ-221X	CMF RESISTOR	220Ω,1W
	R25	QRZ0125-183	RESISTOR	18kΩ,1/4W
	R26	QRZ0125-471	RESISTOR	470Ω,1/4W
	R27	QRL037J-470	CMF RESISTOR	47Ω,3W
	R28	QRL037J-470	CMF RESISTOR	47Ω,3W
⚠	R29	QRZ9005-100	F RESISTOR	10kΩ,1/4W
	R30	QRZ0125-472	RESISTOR	4.7kΩ,1/4W
	R31	QRZ0125-683	RESISTOR	68kΩ,1/4W
	R32	QRA141F-7501	MF RESISTOR	7.5kΩ,1/4W
	R33	QRZ0125-103	RESISTOR	10Ωk,1/4W
	R34	QRZ0125-151	RESISTOR	150Ω,1/4W
	R35	QRA141F-6203	MF RESISTOR	620kΩ,1/4W
	R36	QRZ0125-474	RESISTOR	470kΩ,1/4W
⚠	C1	YQ10626-401	F CAPACITOR	0.068µF,250V
	C2	YQ10626-402	E CAPACITOR	47µF,400V
	C3	YQ10626-403	CAPACITOR	3300pF,500V
	C4	QWHA1HM-475	E CAPACITOR	4.7µF,50V
	C5	YQ10626-404	E CAPACITOR	47µF,16V
	C6	PTY10067-511	CAPACITOR	0.1µF,25V
⚠	C7	PTY10067-513	CAPACITOR	1500pF,250V
⚠	C8	PTY10067-513	CAPACITOR	1500pF,250V
⚠	C9	PTY10067-513	CAPACITOR	1500pF,250V
⚠	C10	PTY10067-513	CAPACITOR	1500pF,250V
	C21	YQ10626-408	CAPACITOR	1000pF,500V
	C22	PTY20080-522	E CAPACITOR	680µF,16V
	C23	QETA1CM-227	E CAPACITOR	220µF,16V
	C24	PTY10067-511	CAPACITOR	0.1µF,25V
	C25	PTY10067-511	CAPACITOR	0.1µF,25V
	C26	QFVD1HJ-104	F CAPACITOR	0.1µF,50V
	C27	QFVD1HJ-473	F CAPACITOR	0.047µF,50V
	C28	QFLA1HJ-222	F CAPACITOR	0.0022µF,50V
	C29	QFLA1HJ-153	F CAPACITOR	0.015µF,50V
	C30	QFVD1HJ-224	F CAPACITOR	0.22µF,50V
	C31	YQ10626-404	E CAPACITOR	47µF,16V
	C32	QETA1CM-106	E CAPACITOR	10µF,16V
	C33	QFVD1HJ-154	E CAPACITOR	0.15µF,50V
⚠	L1	PTY10067-522	LINE FILTER	
⚠	L2	PTY10067-522	LINE FILTER	
	L5	PTY10067-521	FERRITE BEADS	
	L21	PTY20080-533	CHOKE COIL	
	L22	PTY20080-534	TROIDAL COIL	
	L23	PTY10067-521	FERRITE BEADS	
⚠	PHC1	PC123YS	PHOTO COUPLER	
⚠	or	PS25611VM	PHOTO COUPLER	
⚠	or	PS25611VH	PHOTO COUPLER	
	JK21	YQ10531-570	DC JACK	
⚠	T1	PTY20080-541	TRANS	
⚠	F1	PTY10067-102	FUSE	
	SW21	PTY10067-531	SWITCH	
	HS1	PTY10067-541	HEAT SINK A	
	HS2	PTY10067-542	HEAT SINK B	
	OT1	PTY10067-551	SCREW,X2	
	TB1	PTY10067-561	TERMINAL 1,X2	
	TB2	PTY10067-562	TERMINAL 2,X3	
	HD1	PTY10067-571	TERMINAL HOLDER	
	CN1	YQ10531-560	CONNECTOR	